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THE Northern and Southern parties of the visiting members of the Iron and Steel Institute and of the Verein Deutscher Eisenhüttenleute have both safely returned to New York. Both trips were highly successful and the visitors have expressed their satisfaction in terms which are gratifying to the various reception committees. Most of the party will leave for home this week or next, but some of them will spend some time longer in the country, and a number will make a tour in Canada.

A STEAM VESSEL, with a party of government engineers, has passed through the Mussels Shoals Canal on the Tennessee River, thus practically opening navigation on that river from Chattanooga to its mouth. The formal celebration of the completion of the improvement will be held on November 12th. The importance of the work, which has been under way for many years, can scarcely be overestimated. It practically places Chattanooga and Southeastern Tennessee on a par with Pittsburg as to communication by water with the Mississippi River and its branches.

THE great Quaker Bridge dam for storing the waters of the Croton watershed for the use of New York City, concerning which so much has been written in recent years, has now been given its quietus for at least a generation to come. The New York Aqueduct Commission has unanimously approved the recommendation of Chief Engineer FTELEY not to build the Quaker Bridge dam, but to build another and a much smaller one about a mile below the present Croton dam. It is estimated that this dam will impound 16,000,000,000 gallons of water and this, together with the storage in other smaller dams now under construction, will be ample for the needs of the city for the next twenty years. The Quaker Bridge dam was objected to chiefly on account of its enormous cost, the interest on which for twenty years would more than pay for the whole cost of the smaller dam and interest on it for the same time. The new Croton dam will be 995 feet long and 105 feet high, with a foundation extending 100 feet below the river bed. The estimated cost is $1,746,000, and the time of construction from three to four years.

## THE NATURAL-GAS QUESTION IN PITTSBURG.

The Philadelphia Company, the leading natural gas company in Western Pennsylvania, has notified the iron manufacturers of Pittsburg that it will cease to furnish gas to the puddling furnaces after the 29th inst. The company explains its action by stating that it is not taken on account of any scarcity in the supply, but because the gas can be used to greater advantage in private houses, as the price paid there is many times greater than for the same quantity of gas used in the iron furnaces. The order has created a sensation in the iron trade, as a matter of course. It will increase to some extent the cost of production of puddled iron, and will thus place that metal at an increased disadvantage as compared with steel. It will also be likely to cause Pittsburg to regain its old title of the "Smoky City," much to the disgust of its inhabitants.

The action of the company has taken the iron manufacturers by surprise; but it should not have been expected by them that their waste of this wonderful fuel should always be permitted. When 30,000 private consumers had been supplied with the gas in their own houses, where it proved to be such a boon that they would pay almost any price rather than dispense with it, and when there are prospects of an immediate and vast increase in this private consumption, taxing the capacity of all the pipe lines as well as of the wells, it is no more than might be expected that the owners of the wells would take a step which would reduce the wastage of the gas, and cause that which remained to bring a higher price. According to the latest information the price of gas to private consumers has been raised 50 per cent., the advance to go into effect December 1st.

The stoppage of the gas supply to the furnaces will increase the demand for coal, and should lead to increased activity in the invention and introduction of processes for making fuel gas out of coal.

## THE PROSPECTS OF THE TRANSVAAL.

A correspondent in the Transvaal, who is connected with a gold mine situated at one of the "outposts of Boer civilization" (save the mark*) finds that the pay gold in the so-called "banket" beds is contained chiefly in large lenticular-shaped masses, and by carefully selecting these "pay shoots" and leaving the poor rock unmined the grade of the ore can be about doubled over the former method of mining, which was by long wall, as in coal mining. The ore carries about half its gold in pyrites, and these are concentrated on Frue belts of Fraser-Chalmers make. These concentrates carry from one and a half to three ounces of gold to the ton, and could evidently be well adapted for chlorination; but as one firm has secured a monopoly in the Transvaal for the application of chlorine for the extraction of gold, this method is likely to be expensive, and we are not surprised to find the cyanide and other methods being experimented with. All reports agree that the great boom in the Transvaal has collapsed, and the country is going through the disagreeable period of liquidation which follows all abnormal "booms." It is not a desirable country for an engineer to go to at present, though undoubtedly the proven value of many of its mines will ultimately bring about a permanently prosperous condition of the mining industry, though on a much lower plane of values than have been ruling during the wild excitement of the recent stock boom. The onerous government royalties will have to be reduced, and many other Boer conditions, if, indeed, not the whole Boer government removed, before the Transvaal will become an inviting field for Americans or English.

## THE NEW TARIFF AND THE EXPORT TRADE.

The cost of any manufactured article is made up of three items: First, material; second, labor; third, general expense, and whenever one of these is increased it becomes necessary to lower one or both of the other items, if the total cost is to remain the same, as it necessarily must where the article has to find sale in the international competitive markets. The

*Where he "sees occasionally leopards, monkeys six feet high, anacondas, hippopotamus, lions, etc."

object of the McKinley Bill, or new tariff law, is to advance the selling price and with it the cost of most articles of manufacture and of the raw materials that enter into them, and since this increased cost extends to the necessaries of life, wages must be increased or else workmen will actually earn less than they did before. It is out of the question to expect the wage-earners to be satisfied with their remuneration when their cost of living is largely increased; it is therefore certain they must receive an advance in wages, though it may well happen that their net earnings will be less than before. In order, therefore, to be able to sell in foreign markets in competition with manufacturers who have not had their costs increased, the American manufacturer will have to lessen his general expenses and his profits. As the former increase as the quantity made is diminished there can be little hope in this direction, while the profits in the export trade have not been so great as to admit of much reduction. The whole effect of the McKinley Bill is therefore injurious to and in some cases prohibitive of foreign or export trade.

In manufacturing industries that already supply the whole home market, the cutting off or restricting the foreign outlet will necessarily reduce the output and lessen the work to be done here, and in this respect will be a positive disadvantage to the industrial classes. On the other hand, those industries that will gain by the exclusion of foreign goods will give more employment to labor, though this will be gained by a tax upon the whole country far exceeding in amount the gain to the favored few.

The true principle of protection is to encourage the establishment of new industries, which, when established, will be able to maintain themselves without a national bounty. If the natural conditions are such that they cannot do this, they should either not be started or at least should not be maintained by a perpetual tax on the country. Much less does the true principle of protection contemplate a perpetual tax on the country to increase enormously the profits of well established industries that can maintain themselves and prosper without national bounty. The protective tariff should be a steadily diminishing and not an increasing tax. Our industries, for the fostering of which in their infancy the country is willing to be taxed, should understand that this assistance is to be temporary only and prepare themselves to stand alone.

The danger of the present policy of protection run mad is that the people will become utterly disgusted with a system that calls not only for a tax to inaugurate a new industry, but for a constantly increasing tax through all succeeding years to make it more and more profitable. It becomes a veritable vampire that has attached itself to the tax-payer, and is ever absorbing his life-blood. Finally, enraged at this abuse of its generosity, the people will suddenly cut off all tariff, and the pampered industries, wholly unprepared to meet a condition of affairs that they would have adapted themselves to under a gradually diminishing tariff, will unquestionably suffer great disaster. Those who are advocating such examples of protection as the McKinley Bill are the worst enemies of the system, and assume a responsibility that will certainly overwhelm them.

We have in our beloved country all the natural advantages which will enable us to hold our own in the competitive markets of the world, and it is there we must seek for an outlet for the surplus products of our industry. We should increase our occupations by admitting all raw material free and by manufacturing for a large part of the outside world as well as for our own people, and not tax ourselves in order to turn over to England, France and Germany the markets which rightfully we should supply.

## NEW PUBLICATIONS

BIEN'S ATLAS OF THE METROPOLITAN DISTRICT AND ADJACENT COUNTRY. Published by Julius Bien & Co., 139 Duane street, New York. Price $20.

This atlas is in every respect a splendid example of map-making. It is the first of the kind published in this country, and compares favorably with the best work of European map publishers. In the completeness and correctness of detail is its great recommendation. The scope of the atlas embraces the counties of New York, Kings, Richmond and Westchester and part of Queens, with Hudson and parts of Bergen, Passaic, Essex and Union counties in New Jersey. The scale employed is two inches to the mile, which admits of detailed illustration of the many economic features of interest within this area. All roads are indicated, the streets of the towns being named; the forestry, hydrography and drainage are included, and fresh-water marshes are distinguished from salt-water marshes. The elevations are clearly shown by a system of ten and twenty feet contours numbered, and the general appearance of the country is brought out in plastic effect by the use of graded shading, similar to the method employed by the Royal Survey of Saxony. An excellent index map, with which the atlas opens, is probably the most complete map of this region that has been published.

The mechanical work on this atlas is of the highest class, the coloring being especially beautiful. Each map, mounted on guards, and substantially as well as tastefully bound, is 17½×23 inches in size. Messrs. Bien & Co. are to be congratulated on their achievement, and we predict that it will have a large sale among those who are interested in the development and advancement of this section of the country.

MILLIONAIRES OF A DAY. AN INSIDE HISTORY OF THE GREAT SOUTHERN CALIFORNIA BOOM. By Theodore S. Van Dyke. Published by Fords, Howard & Hulbert, New York. 208 pages. Cloth, $1; paper, 50 cents.

The great "boom" which raged in Southern California in 1886 and 1887 was like nothing else in history, except possibly the "tulipomania" which raged in Holland just 250 years before. Thousands of lots on paper, town-sites which were bought for $10 to $30 an acre, and without water for irrigation were not worth half of these figures, were sold in lots at from $1,000 to $10 000 an acre. This was done in dozens of places and continued for many months, with the buyers daily becoming more ravenous. At many a sale of the merest trash buyers stood in line all night, and $50 or $100 were paid for places in the line in the morning. Mr. Van Dyke has described this boom and its collapse in a most fascinating style. If the incidents he relates were printed in a novel, they would be criticised as being unnatural and improbable, but he assures us that instead of exaggerating the occurrences he has suppressed many of them. He describes briefly the condition of the Southern countries in 1875, when it was next to impossible for a man to get a living out of the soil, then the wonderful change which had taken place 10 years later, when irrigation had turned the desert into a garden, rich with fruits and flowers and grass, producing more actual profit to the acre than any other equal area in the United States. Then the boom came, when the raising of grain and fruit was actually neglected on account of the craze to buy town lots and to build magnificent hotels and residences upon them. Then the collapse came, of course, but, most wonderful to relate, it brought no great business crash; not a bank nor a prominent mercantile house failed. The author tells how the readjustment came about, as follows:

"A few creditors were merciless, and refused to take back at any price property on which they had received a one-third payment, which was more than the whole could possibly be worth in the next 10 years. But the great majority knew how it was themselves, and looking at the whole fabric of society as a row of bricks on end, were disposed to do what was fair. Consequently, liquidation began almost from the first month of the decline, and dozens were every day released from their obligations. Some received a part of what they had bought equal to the payment they had made, and got a release from the remainder of the debt. Others were released from the whole of the debt by deeding back the property and losing what they had paid on it. In no case was there any personal obligation to pay any more than the sum already paid, and the whole contract amounted only to an option on the part of the buyer."

After the boom things settled down to a solid business basis. People gauged the situation, and saw they had to depend on themselves and went back to work. Half a million more acres that had never felt the plow were upturned and planted, and by the time the harvest of 1889 came the land was overflowing with a surplus. In fact, it was mainly after the decline began and on a constantly falling market, with imaginary fortunes vanishing every day in smoke, that Los Angeles was turned into the beautiful and comfortable city that it now is.

Mr. Van Dyke has not only given us an entertaining book, but one which is highly instructive in showing one of the phases of human nature, the weakness and folly, when a "boom" comes, of those who are considered to be, in ordinary business, the strongest and wisest. One and all, they are infected by a "boom" as by an epidemic disease.

### BOOKS RECEIVED.

*Report of the Inspectors of Mines of the Anthracite and Bituminous Coal Regions of Pennsylvania*, for the year 1889. With Maps. Published by the Government, Harrisburg, Pa., 1890. Pages 463; illustrated.

*The Iron and Steel Interests of Chicago, Ill.* Compiled and published for the information of the Iron and Steel Institute and Verein Deutscher Eisenhüttenleute, on the occasion of their visit to Chicago, 1890, by George W. Cope, Chicago, 1890. Pages 94. With maps.

## CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.

### The Tamarack Cost of Copper.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Referring to your remarks on your correspondent's severe review of the Tamarack report, let me put the figures of three years' work of the Tamarack mine in tabular form for easy comparison. I quite agree with you that a mining company should not keep an "improvement account." I also think with you that the directors owe the stockholders some explanation of the very low price at which the company's copper was sold.

COST AND SELLING PRICE OF TAMARACK COPPER FOR EACH FISCAL YEAR ENDING 30TH JUNE.

| | 1888. | 1889. | 1890. |
|---|---|---|---|
| Mining expenses at mine | $3.97 | $4.61 | $5.29 |
| Smelting, transport, and other expenses | 1.78 | 1.64 | 1.98 |
| | $5.75 | $6.25 | $7.27 |
| Improvement account | 1.45 | 1.46 | 4.07 |
| | $7.20 | $7.71 | $11.34 |
| Copper sold at | 13.95 | 12.90 | 11.99 |

BROKER.

### The Report of the Tamarack Mining Company.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In the ENGINEERING AND MINING JOURNAL of the 25th I notice an article on the Tamarack Mining Company's report, and while I admire the facility with which the author states his several propositions, I think he is wrong in his conclusions and unfair to the management, especially as far as the realization of the company's copper product is concerned.

The criticism that I would make on the report is that the company did not state that it had a fire and other serious drawbacks which diminished the product.

For almost three months they had no full production, but increased expenses; it happened unfortunately during such months where copper reached top price, 17 cents. Otherwise the average selling price would favorably compare with the prices received by other mines.

A striking illustration to this is the excellent sale of the copper matte produced by the Boston & Montana Copper Company, which is under the

same management and employs the same sales agents: 11·54 cents per pound of fine copper contained in the matte, equal to 14·04 cents per pound of ingot casting copper, during the period July 1, 1889, to July 1, 1890.

Permit me to say, that it is easy enough to look back and say the copper was sold too cheaply, but suppose that after selling, copper had declined, would any one give to the managers or to the agents credit for getting top prices?

A mining company has no right to accumulate its product, and to speculate to obtain higher prices. If the management maintains its policy to sell the mine's product as early as practicable, it will finally come out all right.

Whatever your correspondent says to show how wrong the particular system of accounts is, *i. e.*, to keep a construction account separate from the working account of the mine, I heartily endorse.

I confidently look toward better results for the coming year, and hope the management will submit a more explicit and more favorable report next year. S. E. R.

NEW YORK, October 29, 1890.

### The McArthur-Forrest Cyanide Process for Treating Gold Ores.

EDITOR ENGINEERING AND MINING JOURNAL:

Sir: Last week I sent you some directors-reports which I hope you got safely, for I am sure that you will find them instructing enough to publish. The Langlaate Estate ore is probably the best showing (when the ore-reserves are taken into account) that has been published anywhere for some time.

I am experimentally investigating the cyanide process for extracting gold from sulphurets. This process you know under the name of the "Cassells" or "McArthur-Forrest" process.

I must say that up to the present my results have utterly amazed me. From concentrates, consisting of nearly pure pyrite (perhaps marcasite) with a small quantity of free gold, and which assayed slightly more than 39 ounces of gold to the ton, I got in a 2 per cent. solution of potassium cyanide, after digesting for 48 hours and agitating for 8 hours, some 96 per cent. of the gold in solution, at least it would appear so from assaying the residue; though I can up to date only precipitate with metallic zinc some 60 per cent.

Of course as yet these results have no scientific value, but as we are all much interested in the matter over here, and as your paper is regarded as the authority on mining and metallurgical matters, may I ask you to let us know through your columns all the information that you possess or can obtain as to what is known of this process in the States. By doing this you will oblige many more than myself.

Financially things are looking very blue over here, but the monthly yield of about $750,000 still continues, with nearly as much in the tailings. So since there is no prospect of this yield materially decreasing for some time to come, and further, when proper treatment is inaugurated, it should about double, there is no doubt but money troubles will not long hamper mining operations. W. H. FURLONGE.

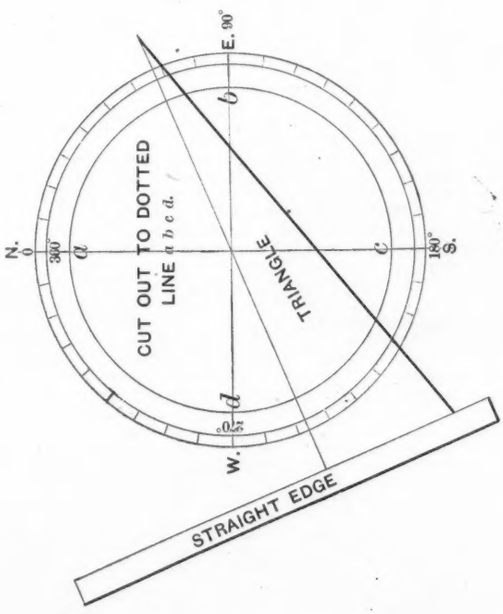
JOHANNESBURG, S. A. R.

[Will our readers who can give information on this subject please write us?—ED. E. and M. J.]

### Preliminary Plotting.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I inclose you a rough sketch of a method of plotting that we have been using for topographical work, which, I think, is something new. It




is very rapid, fairly accurate and will answer well for preliminary lines on railway work, etc., where absolute accuracy is not required. It consists of an ordinary paper protractor, with the center cut out to inner line, *a b c d*, and is used with a straight edge and triangle or a parallel ruler, as shown in figure, the work being kept in center of protractor and courses carried down with a parallel or triangle.

RALEIGH C. H., W. Va., October 3, 1890. E. M. KEATLEY.

### An American's Remarkable Career in Peru.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: In your issue of Sept. 20 your correspondent "N." writing about "Peruvian prospects," makes a statement which I cannot pass by without comment. He says that, since the death of Henry Meiggs, "there has been no one here [in Peru] to imagine how to achieve, much less to dare to attempt, the gigantic works which his daring talent, seconded by able supporters, left behind him unfinished when he died."

This was written at a time when active operations had been commenced on a scheme to develop the resources of Peru on a grand scale, under the general direction of Mr. M. P. Grace, who surely cannot be accused of inability to devise great schemes, or of timidity in attempting to carry them out. Hence I infer that "N" intends to refer to the long period of gloom antedating the "Grace contract," when the better class of Peruvians, like the decent inhabitants of Noah's Ark, often were "as much troubled by the stink within as by the tumult without." Even thus the statement is inaccurate. For there was then in Peru a man who devoted his life to the completion of Meiggs' greatest works, and who, so far as boldness of conception, fertility of resource, skill in execution and absolute disdain of danger are concerned, was fully equal to the task. The reasons why he did not succeed were: the disastrous war with Chili, followed by the no less disastrous civil war; the subsequent opposition of Chili aided by the corruption of certain Peruvian politicians, and a complete want of that toughness of conscience which often enables a man to carry his point, especially in matters where politics are involved. But although he did not succeed during his life in completing his task, his efforts rendered this possible for those coming after him.

William H. Cilley was the ablest man I ever knew, and his career was very remarkable. He could run and repair, perhaps build, a locomotive at the age of 17. He could construct and manage gas works at 20. He had served an apprenticeship in hydraulic and quartz mining, and was a mine owner at 22. Having lost his money, through others, and being left almost penniless in Chili when 23 years of age, he took a position as section hand on a railroad, and within a couple of years had risen through intermediate grades to the position of superintendent of construction, and then of contractor for building Andean railroads, had achieved a brilliant reputation for managing men and conducting difficult engineering operations, and had made a fortune.

When he was 26 the Chilian government, then at war with Spain, intrusted him with the mission of buying in the United States ammunition and heavy guns for the forts at Valparaiso. The arms were to be paid for only on delivery in South America and the risk was great. The United States Government was faithful to the obligations of a neutral power, and the Spanish agents were forewarned and vigilant. The remarkable financial and diplomatic abilities of the young man enabled him to perform this difficult and delicate mission with success.

Limitations of space forbid giving an account of many noteworthy achievements of Mr. Cilley; but his building of the Oroya Railroad and his management of it for years amid all the dark times of Peru, and his preservation of the greatest plans of Meiggs from total annihilation, certainly merit mention.

When the obstacles encountered in the construction of the Oroya Railroad above San Bartolomé became so great that the ablest engineers pronounced further construction impossible, Mr. Meiggs, who had staked his reputation on the building of this road, called Mr. Cilley to his assistance and gave him full control. The position was one requiring the very highest order of talent.

The road follows the cañon of the Rimac river, a narrow, tortuous defile hemmed in by mountains whose summits tower thousands of feet above the stream. The precipitous cliffs occasionally rise vertically from the water's edge to dizzy heights, making it impossible to trace out the line on the surface. Everywhere the laying out of the line was extremely difficult, often necessitating the construction of a trail before any work could be commenced or even a point given for commencing work. At places the ground was unstable, liable in the wet season to slide in huge avalanches, as at Matucana, where once the mountain side slipped into the gorge, damming the river in such a way as to threaten the existence of Lima. It was necessary always to locate fifteen or twenty miles ahead of construction lest some new obstacle should be encountered which would compel a new location commencing many miles back. Frequently, either to gain greater length (in order not to exceed the maximum grade allowed) or to avoid treacherous ground, the line was run up lateral ravines or zigzagged up the sides of the cañon. Just above Chicla there is a spot where a line drawn across the narrow cañon would cut the roadbed five times. Not far below this spot the expedient of tunneling into the solid mountain merely to gain grade was resorted to—an expedient afterward more fully developed in the "spiral" tunnels of the Swiss St. Gothard Railroad.

The region through which the road runs is barren, treeless, and destitute of all supplies. Every stick of timber, every pound of iron, powder, coal, tools, provisions and grain had to be brought from foreign countries and then transported on the backs of imported animals over miles of dizzy trails built for the purpose. Even the labor had to be brought from abroad, principally from Chili, Bolivia and China. Many of the workmen were of the roughest class, addicted to liquor and gambling, armed with knife or revolver and ever ready to fight. It took a strong and fearless man to control these when excited. But Mr. Cilley was a natural leader of men, and the laborers soon learned to respect, love and fear him. Among the Chilian roughs he was known as "*el diablo flacco*"—the thin devil.

An additional obstacle was the terrible Verrugas fever, which made dire inroads into the ranks of the laborers, and was so dreaded that at times it was difficult to get the engineers and men to continue on the work.

All these things rendered the building of this road a feat unequaled in the whole history of railroad construction. In comparison with it the great engineering achievements in Europe or the United States seem only light tasks, since in these more fortunate countries adequate supplies of material and ample machine shops are close at hand, and a mistake which on the Oroya would involve months of delay and huge costs can be easily remedied. An adequate description of this work is yet to be published. Some years ago I began to collect the material for such a work, but abandoned the idea on learning that Mr. M. Van Brocklin

proposed to write a memoir on the subject. I hope that this eminent engineer, who rendered such valuable services on the road, will soon make public the full details of this grand undertaking.

The genius of Mr. Cilley was fully equal to the task imposed on him by Mr. Meiggs, and before long the "impossible" was an accomplished fact. The road was graded and the tunnels were all pierced as far as the terminus (Oroya) when the Peruvian Government declared itself unable to pay for what had already been finished and went into bankruptcy, suspending further operations. The rails had been laid only about 80 miles, but all the great engineering problems had been successfully solved. So excellent was the work on the completed sections that, although the line for 50 miles is a constant succession of curves, switchbacks, tunnels and bridges, has an average grade of 3½ per cent. and passes over very dangerous ground, no serious accident occurred during 18 years of operation under Mr. Cilley's management.

Henry Meiggs, on his deathbed, called for Mr. Cilley and charged him with the completion of his greatest work, the fulfillment of his dearest ambition. This was the finishing of the Oroya railroad and its main branch, and the development of the Cerro de Pasco mines. Mr. Cilley at once began operations. He devised an excellent plan for working the mines, formed a company, raised a large working capital, and built and brought to Peru a complete 80-stamp mill, which has been described in THE ENGINEERING AND MINING JOURNAL. So perfect was the scheme, so well worked out in all its details, that it is my sincere belief that it would have been a brilliant success had it been carried out under the management of Mr. Cilley, who possessed the respect and confidence of the Peruvians to a wonderful degree.

Certain powerful and unscrupulous men in Lima were so well convinced of the value of this project that they undertook to "freeze out" the mass of stockholders and get the whole affair in their own hands. Taking advantage of Mr. Cilley's absence in the United States, they robbed the company of $300,000, under pretence of a loan to the bankrupt government. Then came the war with Chili and the civil war, and until 1836 all peaceful enterprises were of necessity abandoned. That the Oroya road was not destroyed during these troublous times, when the breaking of the line often would have been of immense advantage to one side or the other, and was repeatedly threatened, is proof of the great diplomatic ability of Mr. Cilley, who, by his firmness and tact, saved the road and preserved other important interests intrusted to his care. He commanded the admiration and respect both of the Cuilians, who had not forgotten the important services previously rendered to their country, and of each faction of the Peruvians, to whose aid he had often come when they were in distress. For when all others shrank from the perilous and perhaps thankless job, he had accepted the call of the government to hold the position of General Superintendent of all the Peruvian railroads during the war, and had performed many a daring and useful exploit, repeatedly risking his life for others, and never asking any reward. Surely no man of late years has done more for Peru than this foreigner, to whom came all sorts of men for aid, comfort and advice, and never in vain.

As soon as peace was established Mr. Cilley formed new plans for developing the country. A new mining scheme was devised adapted to the changed conditions, as well as a most extensive plan for completing the railroads, opening up new districts and re-establishing the financial credit of Peru. His aid was most important in forming and carrying through the "Grace contract," so-called from the principal negotiator, Mr. M. P. Grace, and his advice was sought by both parties. The Peruvian Executive recognized the value to Peru of this proposition and favored it; but Chili also saw its importance and opposed it, and for two years the Peruvian Congress put off its legal ratification. Before the final agreement was reached Mr. Chilley had died. His tremendous exertions during so many years and amid so many difficulties had been too great, and on September 10th, 1889, he passed away.

His courageous devotion to duty, his intense loyalty, his generosity and complete effacement of self for the sake of others, his keen sense of justice and chivalrous integrity merited and received the reverential love of his many friends. The proofs of his genius in railroad building, to quote one who closely watched his career, are hewn in letters of granite in the rugged defiles and on the lofty slopes of the Cordillera, where at a height of 15,600 feet the highest tunnel in the world, nearly 4,000 feet in length, pierces the summit. Although his remarkable ability is known and appreciated in Chili and Peru, and in the highest engineering circles of England and the United States, yet, owing to his invincible repugnance to mere newspaper notoriety, his invariable custom of giving to those associated with him even more than their due share of credit, and more especially on account of the darkness in the land where he last worked, his countrymen have generally had opportunity to learn but little of his heroic character and deeds.

At his death Lima draped herself in mourning, flags drooped at half-mast and private and public offices were closed. The President of the Republic, represented by his aide-de-camp, the President of the Senate and the Secretary of the Treasury were among the pall-bearers. Thousands of mourners followed the coffin, which was guarded by a troop of cavalry in representation of the army, and at the tomb Peru expressed her grief and gratitude through the lips of her most eloquent statesmen.

OCTOBER 1890. A. D. HODGES, JR.

**The Nicaragua Canal.**—Gen. Daniel Macauley, of Indianapolis, who is largely interested in the Nicaragua Canal, has just returned to Washington from Nicaragua, and reports matters progressing satisfactorily. He is reported as having said: "Up to date $3,500,000 haf been expended on the canal. On the east coast there is to be an excavation to the depth of 150 to 200 feet through solid rock, for a distance of two and a half miles. This excavation alone will cost $10,000,000 or $15,000,000, but when it is once begun it is merely a matter of so much dynamite and so many laborers. On the west coast the rock to be removed is not so great in quantity, and in both cases the debris is to be utilized in the construction of dams, ocean piers and canal locks, so that it is valuable material and not waste stuff which we excavate. Of the entire route of 167 miles, but 27 miles require much digging. Labor is reported scarce, most of it coming from the United States. At present a force of 3,000 men is at work. Gen. Macauley says that the preparatory work is nearly finished, and the actual excavation will soon commence. He thinks that in five or six years steamers will be passing through the canal."

## THE SPECIAL EXCURSION OF THE FOREIGN ENGINEERS.—IV.

Special Correspondence to the Engineering and Mining Journal.

The special train of eleven Wagner vestibuled cars, bearing the northern division of the British Iron and Steel Institute, the Verein Deutscher Eisenhüttenleute and American Institute of Mining Engineers, arrived at Iron Mountain Wednesday morning, the 15th instant. They were cordially welcomed to the State of Michigan and the Menominee iron range by Mayor Cady, of Iron Mountain. The brief ceremonies over, obliging guides led the way to the works of the Chapin and Ludington mining companies and the plant of the Hydraulic Power Company. The German contingent was especially interested in the Chapin mine, the largest of the important group of Michigan mines, operated by German capital—the Schlesinger syndicate. The haste with which it was necessary to move the party, in order to comply with the itinerary, here at once became painfully apparent, and was the one thing greatly to be regretted throughout the entire tour.

Thursday was devoted to the Gogebic iron range, where the magnitude of the developments when considered in connection with the newness of the district elicited expressions of astonishment. The great Norrie mine was visited, and many of the excursionists embraced the opportunity offered to examine its underground works. Three days were next spent in the copper mining district, the world's greatest storehouse of native copper. A committee of the representative men of Houghton county, headed by Hon. Jay A. Hubbell and Dr. Wadsworth, director of the Michigan State Mining school, had a special train in waiting on Friday morning to convey the visitors to the smelting, stamping and mining plants of the Calumet & Hecla company. In the examination of these plants caustic criticism of the apparent lack of economy in the equipment of the mine, which seemed to many better designed for display than for use, was mingled with exclamations of admiration for the magnificent surface outfit. "How magnificent," exclaimed Sir John G. N. Alleyne, the designer of St. Pancras station, at the same time casting a significant side glance, which plainly spoke the thought, to which he afterward gave utterance in the words, "How wasteful!"

Luncheon was served at Calumet, at the conclusion of which Hon. Jay A. Hubbell, in an eloquent address, welcomed the guests to the copper country and placed its hospitality at their command. Sir John Alleyne responded feelingly on behalf of the visitors. Other addresses were made by Theodore Fry, M. P.; Professor Lunge, of the Swiss Polytechnic School at Zurich; J. F. Lewis, of New York, and an address in the German language by General Manager Brauns, of the Dortmund Union Works, Germany. The afternoon was given to an inspection of the Tamarack premises, where the compactness of the equipment, arranged with a view to securing a maximum of service, stood in strong relief against its showy neighbor, the Calumet & Hecla. Captain Daniell's policy in sinking No. 2 shaft so near No. 1 was, however, subjected to much adverse criticism, the ground taken being that the former had been already discounted by the latter in its underground operations, leaving No. 2 no tributary ground.

On Saturday the party divided into three sections, one going to the plant of the Tamarack-Osceola Manufacturing Company at Dollar Bay, another to the Atlantic mine and mill, and the third to the Quincy and Franklin mines. At Dollar Bay the process of electric welding was successfully illustrated. At the Atlantic mine, Mr. John Stanton extended his guests a royal welcome. Here the prosperous operations of a copper mine producing the lowest grade of rock in the Lake Superior district were examined with great interest.

After luncheon the three sections of the party reunited at the mining school, where they listened to an able and clear exposition of the aims and methods of the school by Dr. Wadsworth. This school is founded on a purely professional basis. The features peculiar to this school are these: Exclusive attention to technical and professional work, without regard to the previous education of the student, except that a good grounding in mathematics is an essential qualification for admission; special advantages of location affording facilities for a proper combination of practice and theory; a course of work laid out with especial reference to the seasons, enabling the school to dispense with vacations and yet afford the student ample recreation, shortening the usual course one year, saving that to the student's actual life work. The course of the school was highly commended by Sir John Allenye, Theodore Fry, M. P., Oberlin Smith and Prof. Lunge, especially the latter, who took lively issue against Sir John's views in favor of a classical education.

The party attended divine service on Sunday morning, and in the afternoon were treated to a steamboat excursion to the Portage canals and Lake Superior.

On Monday morning the special train was met at Michigamme by a special from Marquette, bearing the mayors of Ishpeming, Negaunee and Marquette, accompanied by representative citizens of the Marquette iron range. There, on the threshold of the range, an address of welcome was delivered by Hon. John Q. Adams, of Negaunee. The party, under the guidance of Mr. J. C. Fowle, then proceeded to examine the concentrating works of the Michigamme Iron Company. The mines of the Champion and Republic companies were visited during the forenoon, Ishpeming being reached early in the afternoon.

The mines of the Ishpeming and Negaunee basins were visited in their turn. It was no reflection on the hospitality and courtesy of the local committees that the visits to the mines were becoming purely perfunctory. The visitors had had a surfeit of sightseeing and looked forward with pleasure to their arrival at the beautiful city of Marquette, when the weary round should have an end. Marquette was reached early Tuesday afternoon. A carriage drive through the magnificent scenery in the vicinity, including the examination of a big saw mill *en route*, was provided by the local committee. The sawmill was examined with the keenest interest, none of the guests from abroad having ever seen a modern American sawmill. The visitors were introduced to the citizens of Marquette at a reception tendered in their honor by Hon. Peter White. It was an enjoyable occasion, and at midnight the tourists departed for Sault Ste. Marie, carrying with them the most pleasant memories of their Michigan trip.

The traveling arrangements of the party, and their personal comforts and conveniences, are admirably handled and provided for by Mr. J. F.

Lewis, of New York, than whom a better man could not have been selected to assume the responsibilities and onerous duties. During the Michigan portion of the trip the party was under the able, special guidance of R. A. Parker, general manager of the Sampson and Imperial mines on the Marquette range.

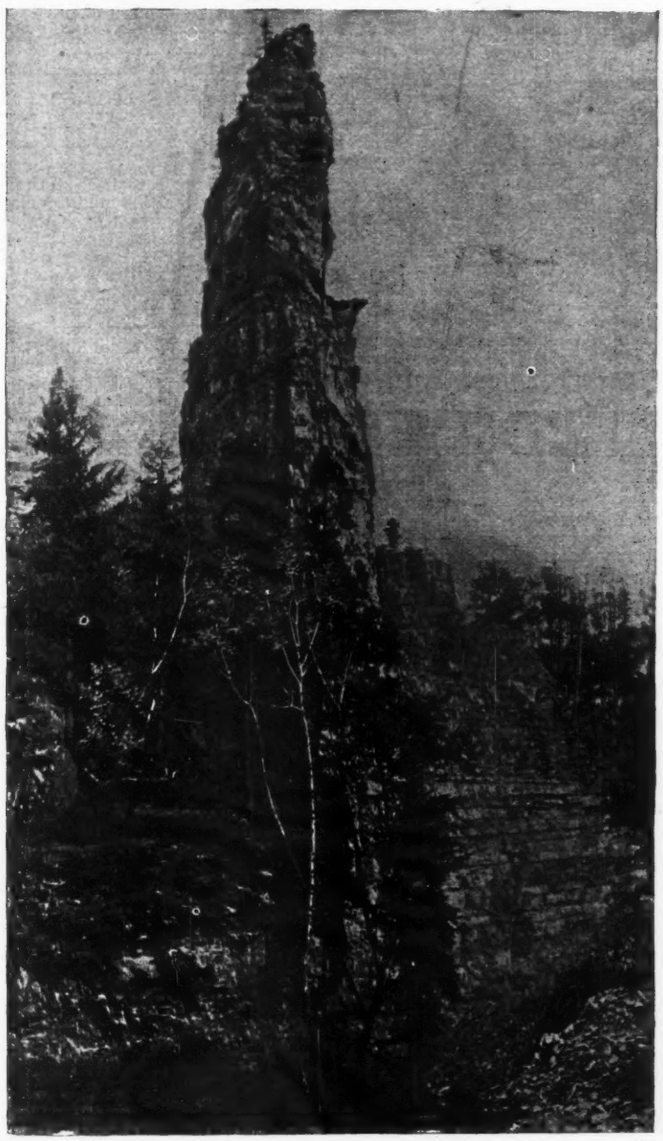
## RAILROADS AND THEIR BEARING ON THE MINING DISTRICTS OF SOUTH DAKOTA.

Special Correspondence of the Engineering and Mining Journal.

The Black Hills & Fort Pierre Railroad Company, which is under the same management as the Homestake Mining Company, T. J. Grier being superintendent, was built in 1879 for the purpose of hauling fuel and mining timbers from the heavy pine forests to the mills and mines at Lead. At first only 10 miles were built, but as the timber grew scarcer, year by year, the roadbed was extended, until it now connects at Piedmont, a point 38 miles from Lead City—the northern terminus—with the Fremont, Elkhorn & Missouri Valley Railroad. But the feature that is the most important to the mine owners is the extending of branches from the main line into the gulches which penetrate the refractory ore districts of Ruby Basin, Bald Mountain and Nevada Gulch. A large proportion of this ore is of high enough grade to warrant the miners in shipping to the Omaha and Denver smelters. Another spur or branch is already surveyed and cross-sectioned into the galena district, coming down Bear Butte Cañon. From the mines on Nevada Gulch ore will be shipped in a few days, that spur having been completed to the mines and ore bins erected at points convenient for shipment.

The Burlington & Missouri River Railroad is being built as rapidly as possible through the heart of the Black Hills, from the southwest to the northeast boundary. This line when completed will form a very prominent feature in the future development of the Hills. It traverses the gold, tin and timber districts of the southern portion as well as the galena, refractory, and free milling ore districts of the northern. The coal and coke of Wyoming will be hauled in, thus saving immense amounts in the cost of fuel for smelters and for private consumption. At present all the coke used here is shipped from Pennsylvania at a very high rate of freight, because the Fremont, Elkhorn & Missouri Valley road at present has a monopoly of the Black Hills business, and has not been slow to take advantage of it. The right of way for a considerable distance through the tin districts of the South was obtained in the first place by the Harney Peak Tin Mining, Milling and Manufacturing Company, in consideration of a contract between the railroad and tin companies, by which the latter retained the right of trackage over this road when completed, and also of building spurs to any of the mines the company required, and should it be deemed advisable, the right was reserved to build parallel with the B & N. This road will be finished into Deadwood by December 1st, and will with its connections with the Deadwood Central, help the mine owners by affording facilities for shipping ore to Denver direct, which they have heretofore been unable to do. The Deadwood Central, a narrow gauge, was first built to accommodate passenger traffic from Deadwood to Lead, a distance of four miles, but the Burlington & Missouri River Railroad Company, when the officers looked the ground over before building operations commenced, saw the advantage a connection with this narrow gauge would be to their road and made the necessary arrangements. The same gulches into which the Black Hills & Fort Pierre Railroad is building have also been graded for the Deadwood Central, thus affording the miners competition in freight from the mines to the smelters, no matter where located, as well as giving them an opportunity to select among the smelters.

The Fremont, Elkhorn & Missouri Valley Railroad, which has heretofore had a monopoly, and could five years ago have obtained the right of way into Deadwood, besides about $100,000 bonus, has to-day been compelled by the Burlington to build into the metropolis, not only without assistance, but at an actual outlay for right of way of about $200,000. Its track is laid to within about six miles and a half of Deadwood. By



KNIFE BLADE ROCK ON LINE OF BLACK HILLS & FORT PIERRE RAILROAD, SOUTH DAKOTA.

November 1st this road ought to be finished into town. Five miles out, a tunnel 900 feet long was run through a limestone hill. This work has delayed the completion of the road, because in the north end of the tunnel the workmen encountered a sand pocket. But notwithstanding this fact, the writer expects the Fremont to be the first standard gauge road into Deadwood. It does not stop here, but seeing the important results being gained by the narrow gauge roads by building direct to the mines, this company is also grading on through Deadwood, up Deadwood gulch in a northwesterly direction with the carbonate camp as one objective point, and Bald mountain as another. These branches, being standard gauge, of course will be at least equally as popular for the shipment of ore, because transfer will not be necessary as on the narrow gauge roads.

At a glance all interested in the future welfare of our little country, the Black Hills, can see what advantages we are about to derive from the building of these railroads, even though we should get no more. But it is certain that before long two, and may be more, roads will be built across the reservation, thereby reducing the distance from Deadwood to the East some two hundred miles or more. So that it is safe to say that in the future, instead of being situated as we have been, like an island in the ocean or an oasis in the desert, we shall have right here a railroad center of no small importance or magnitude.

## ROCK DRILL CONTEST.

At the International Exhibition of Mining and Metallurgy, now held in London, a rock-drill competition took place under the following rules and conditions:

Competitors had to bore two holes each in granite stone, one hole on each side of a center line, which were marked on same, the holes being numbered 1, 2, 3, 4, etc. The number of hole which each competitor had to bore was balloted for.

The man in charge of each machine was required to remove the cylinder end of his machine to enable the judges to measure the diameter of cylinder before competition. The drills were also measured before boring commenced, and also at finish of hole.

Each machine was required to bore a hole of a diameter equal to one-half the diameter of cylinder of machine

After the boring the cubical contents cut was measured by pouring water into the hole or by other means.

There were three sets of competitions. The first was for power drills mounted on a 4-inch bar; the time allowed for boring a hole was two minutes, and each contestant was entitled to bore two holes. The second competition was for power drills on tripods, the time being also two minutes. The third competition was for hand power drills with a time allowance of twenty minutes. The only participants in the last were Messrs. E. T. Bromfield and the firm Le Gros, Mayne, Leaner & Co., with respectively a Bromfield-Ingersoll and an Ingersoll hand power rock drill.

The pressure of the air used by each machine averaged between 65 and 68½ pounds per square inch and was recorded every half minute.

The judges were Messrs. E. H. Corbutt and Henry Davey, and Mr. E. Wilkinson, the chief engineer of the Exhibition, acted as superintendent of the arrangements.

The following table shows the best results of the drills run by compressed air.

| | | Total depth bored. Inches. | Depth bored per minute. Inches. | Total capacity of hole in cubic inches. | Cubic ins. of granite bored per minute. | Cubic feet of air per minute. | Cubic ins. of granite per cubic foot of air. |
|---|---|---|---|---|---|---|---|
| Bickle..... | On bar..... | 18·06 | 9·03 | 48·03 | 24·01 | 29·5 | ·814 |
| McCulloch.. | On bar..... | 15·5 | 7·75 | 42·85 | 21·42 | 29·5 | ·726 |
| " | On tripod.... | 14·56 | 7·28 | 41·47 | 20·73 | 30·0 | ·691 |
| Hathorn .... | On bar..... | 13·87 | 6·93 | 26 78 | 13·39 | 17·5 | ·765 |
| " ..... | On tripod.... | 16·05 | 8·03 | 30·75 | 15·37 | 23·0 | 66 |
| Stephens..... | On bar..... | 11·5 | 5·75 | 29·37 | 14 68 | 23 0 | ·638 |
| Daw..... | On bar..... | 13·06 | 6·53 | 22·46 | 11·23 | 22·0 | ·510 |
| Le Gros..... | On bar..... | 10·87 | 5·43 | 18·42 | 9·21 | 15·5 | ·573 |
| " ..... | On tripod.... | 4·56 | 2·28 | 9·93 | 4·96 | ..... | ..... |
| Coles..... | On bar..... | 7·75 | 3·87 | 10·59 | 5·29 | ..... | ..... |

As a standard of comparison with the hand power drills, a hole was bored with mallets and chisels, two men striking and one holding the chisel. It was timed for 20 minutes, but the stone was pierced in 18½. The work was steady and more rapid than that of the hand power drill.

The judges, in their official report, state that the meter, although apparently working well when 20 cubic feet of air was passing per minute, could not be relied upon for small quantities, but for the quantities recorded in the table the readings may be taken as relatively correct.

It is important to observe that the drills which did the greatest amount of work in the given time also did the greatest quantity of work per cubic foot of air used, as far as could be ascertained.

In almost all competitions accidents happen which vitiate the trials. These accidents may or may not arise from inherent defect in the machine.

## HONORS TO THE DEPARTED.

The following episode of the second International session at Pittsburg, omitted for lack of space from the reports hitherto published, is worthy of preservation. It occurred immediately after the impressive tribute to Ritter von Tunner and to the Leoben Academy, which, as already reported in our columns, consisted in the adoption by a rising vote of a cable message, to be sent to Prof. Hoefer, the orator of the day at the semi-centennial jubilee of Prof. Tunner. Coming, as it did, from the official representative of the German guests, it constituted a graceful recognition and reciprocation of the honor just bestowed upon their countryman.

On motion of Mr. A. Thielen, seconded by Mr. P. C. Gilchrist, it was unanimously

"*Resolved*, That this international assembly recognizes with gratitude the services rendered to the progress of the metallurgy of steel by the labors of the late Professor Grüner, Alexander L. Holley, C. W. Siemens, Sidney Gilchrist Thomas, John Percy and Daniel Adamson; and that the secretary of this session is instructed to communicate officially to the surviving representatives of these distinguished men the expression of this feeling."

In seconding this resolution, Mr. Gilchrist alluded to the gentlemen named in it, substantially as follows:

Gruner, that great French metallurgist, whose writings will always be remembered for the great principles they set forth, and who so clearly foresaw how phosphorus could be eliminated when pig iron was to be converted into steel;

Holley, the great steel-making engineer, the keen observer and critic of our European practice, who, with the able co-operation of his American colleagues, enabled our cousins on this side the ocean to obtain the maximum output from a given plant without the sacrifice of quality;

Siemens, one of the most versatile inventors the world has seen, whose fame is forever associated, among his other great achievements, with the invention of the regenerative furnace and the establishment of the open-hearth manufacture of steel.

Thomas, who independently discovered the practical method of eliminating phosphorus from phosphoric pig-iron, and inaugurated the basic process which bears his name;

Percy, our grand old English metallurgist, who was the first to codify our knowledge and experience in the manufacture of iron and steel;

Adamson, who added to other claims upon our admiration and affection that of his influential example and argument in favor of the general employment of steel for boiler plates; and who, as the President of the Iron and Steel Institute, had so much at heart, and did so much to bring about the international meeting which this session crowns and concludes.

## THE OBLIGATIONS OF TRUSTEE PROMOTERS—THE DUNDERBERG CASE.

The New York Court of Appeals has recently rendered a decision of much importance both to investors and promoters of mining schemes, and altogether in accord with the policy of the ENGINEERING AND MINING JOURNAL, which is to place all the safeguards possible around mining investments, so that the industry may become a more and more popular field for the investment of capital.

The case before the court is known as the Dunderberg case, or more properly James D. Brewster, E. P. Burgess, Wm. C. Stuart, Jasper Cairns and C. T. Jung *vs.* Walter T. Hatch, Chas. E. Quincey, J. Warren Brown, Emery Thayer, Stephen B. Elkins, Mary C. Duncklee and the Dunderberg Mining Company, respondents; Carter, Hughes & Cravath, with William B. Hornblower as counsel, were for the plaintiffs, and Shipman, Larocque & Choate for the defendants.

The decision of the court reviews the case fully from which it appears that the mining property consisting of a number of mines, some of which were large and profitable producers, was bonded by J. Warren Brown for the defendants above mentioned, and an agreement was entered into between these gentlemen specifying the interest of each in the enterprise. The Dunderberg Mining Company was organized under the laws of New York, with a capital of $1,500,000, to purchase these several properties from J. Warren Brown, who was acting as trustee for the defendants. A part of the capital stock was offered for sale under the following

"SUBSCRIPTION AGREEMENT.—Whereas, a corporation is about to be organized under the laws of the State of New York, to be called the Dunderberg Mining Company, for the purpose, among other things, of acquiring title to the following mining properties, known as The Dunderberg, Sub-Treasury, Silver Chain, Muldoon, and Elephant mines or lodes, and a part of the Terrible mine or lode, all situate in Clear Creek County, State of Colorado;

"And Whereas, the capital stock of said company is to be divided into 150,000 shares of the par value of $10 per share, and all of said stock to be issued to J. Warren Brown in payment for said mines:

"Now, in consideration of the transfer to us of the several numbers of shares set opposite our names respectively thereunto subscribed, we do covenant and agree with the said J. Warren Brown that we will accept and receive such stock and pay for the same at the rate of four dollars per share. And for the purpose of carrying out this agreement, we hereby agree to pay to Walter T. Hatch, of 34 Wall Street, New York, as trustee for us, on demand, the aforesaid sums of money so subscribed by us, to be held by the said trustee for us, and paid over by him to the said J. Warren Brown upon the delivery to the Dunderberg Mining Company of a deed or deeds for the mines and mining properties above named, and the receipt from said J. Warren Brown of the several numbers of the shares of stock subscribed by us respectively and not otherwise. Dated New York City, March 10, 1879."

"Before the corporation was organized, Brown and his associates sold about 61,000 shares, the plaintiffs being purchasers of some of them, for $4 per share, which was paid in to Walter T. Hatch as trustee. After the plaintiffs and others had subscribed for the shares, which they subsequently paid for, Brown and his associates, May 7th, 1879, procured the Dunderberg Mining Company, to be incorporated under Chapter 40 of the laws of 1848, of this State, they all becoming trustees for the first year. Subsequently, but before Brown took the title to the mining properties, the plaintiffs paid for the shares for which they subscribed, and on the 31st of May, 1879, Brown completed the purchase, and on the same day the title was transferred to him by the vendors, and by him transferred to the corporation, and 150,000 shares of the stock were issued to him. Immediately afterwards he assigned the number of shares purchased by the plaintiffs to them, and Hatch applied the money in payment of the loan made May 31, 1879, to Brown by his associates to enable him to complete the contract of purchase. The mining property cost the defendants about $242,000, and after distributing the shares sold at $4 each, and those distributed to brokers and others to advance the scheme, the defendants had remaining on hand 58,235 shares, for which they paid nothing. The plaintiffs had no knowledge of the contract entered into between Brown and his associates, nor any notice that the defendants were to acquire shares without paying for them." . . . "The question is, was the relation between these litigants simply that of vendors and vendees of shares to be issued, or was it one of trust and confidence, binding the defendants to the exercise of good faith and to disclose such information as they possessed affecting the value of the property in which the plaintiffs were induced to purchase an interest? The learned counsel for the respective parties substantially agree that if the plaintiffs were simply the vendees of the defendants, the action cannot be maintained; but if the defendants stood in a fiduciary relation to the plaintiffs, a liability exists. The true relation existing between these parties must be sought for in the contracts found by the court to have been entered into in the prospectus which the defendants put forth and in the circumstances involved in the transaction. When the plaintiffs subscribed for their shares there was no corporation in existence. Brown had acquired for himself and his associates the right to purchase the mining properties within a given time at prices agreed upon. These options ran to Brown, but he was acting in the interests of his associates, and the legal relation of the defendants is not different from what it would have been had the contracts stood in their own names. Brown and his associates were under no obligation to purchase and pay for the mines, and their loss if they did not would be measured by the amount paid for the options and such expenses as might be incurred. This being the situation, the defendants fixed the terms and conditions upon which the corporation should be organized. They devised and put forth the subscription paper and prospectus, stating in the paper last mentioned that "among the officers and trustees who will manage its affairs and who will receive subscriptions for stock may be men-

tioned" the defendants. . . . The plaintiffs did not subscribe for shares then in existence, but for shares to be thereafter created by the defendants, and it is certain that it must have been understood by the plaintiffs and those similarly situated that the defendants were to carry forward the enterprise, acquire the property, organize the corporation and generally protect the interests of those who should join in furnishing the money to pay for the property. The documents clearly indicate that the defendants, as trustees, were to control and direct such proceedings as should be taken anterior to the formation of the corporation, as well as after. The prospectus so states, and they actually performed or directed everything that was done preliminary to the organization, when these defendants, and they only, executed the certificate by which the corporation was brought into existence, making themselves trustees for the first year. In the subscription paper Mr. Hatch is called the trustee of the subscribers, and so he was, but he was one of the promoters, jointly interested with them, and all are as responsible for his acts as though all had been named as trustees for the subscribers. As against these facts, it is urged that it being stated in the subscription that the mines were to be capitalized at $1,500,000, to be divided into shares of the par value of $10 each, to be issued to Brown in payment for the mines; and in the prospectus that only a portion of the shares are offered for sale at $4 per share, and that the stock is to be fully paid up and non-assessable, was a distinct notice to the plaintiffs of how the corporation was to be set on foot, and that they and the defendants were dealing solely as vendors and vendees. These papers read in the light of the purpose of the defendants, as disclosed by their evidence, seem to have been devised to cover the underlying scheme by which the corporation was to be organized, largely for the benefit of the promoters, but wholly at the risk and expense of the subscribers. We do not think that the inference contended for by the defendants can be justly drawn from the meager disclosures which they made in the documents put forth. They knew that they, and they only, absolutely controlled the scheme, and were to determine whether it should be carried out, and if so, when and how. We think that the plaintiffs were led to believe, and had the right to believe, from the documents and from the circumstances, that the defendants were acting in the interests of all of the investors, and that they know that the plaintiffs so believed. These defendants were the promoters of the corporation, and occupied before its organization a position of trust and confidence towards those whom they induced to invest in the enterprise. [Getty v. Devlin, 54 N. Y. 403; 70 Id. 504; Erlanger v. New Sombrero Phosphate Company, 3 App. Cas. 1218; Simons v. Vulcan Oil Company, 61 Penn street, 202; Twycross v. Grant, 2 C. P. Div. 503; Whaley Bridge Company v. Green, L. R. 5 Q. B. 109; Mor. Corp. Section 545; Cook S. & S. Section 651; Thomp. Liab. of O. & A. 218, Section 20.] It is conceded, and found by the court, that the defendants did not disclose the amount which they were to pay for the mines, or the fact that they did not intend to exercise their options unless sufficient funds were furnished by others to pay for the property and all of the expenses of organizing the corporation, leaving for distribution among themselves a majority of the stock. It is clear, we think, that if the defendants had avowed their purpose the plaintiffs would not have taken an interest in the enterprise, and that they are liable for the damages sustained by the plaintiffs who were induced to invest in shares to be issued.

"The judgment should be reversed and a new trial granted, with costs to abide the event."

## THE NEW TARIFF LAW.

The following are the items of the United States new tariff law of interest to THE ENGINEERING AND MINING JOURNAL. The contractions used to economize space are c = cents, per c. = per centum, and n. s. p. f. = not specially provided for.

1. *Acids.* Acetic or pyroligneous, not exceeding the sp. gr. of 1·047, 1½c. per lb.; exceeding that sp. gr., 4c. per lb.
2. Boracic, 5c. per lb.
3. Chromic, 6c. per lb.
4. Citric, 10c. per lb.
5. Sulphuric, n. s. p. f., ¼c. per lb.
9. Alumina, alum, alum cake, sulphate of alumina, and aluminous cake, 6c. per lb.
10. *Ammonia.* Carbonate, 1¼c. per lb.; muriate, ¾c. per lb.; sulphate, ¼c. per lb.
12. Sulphate of copper, 2c. per lb.
14. Borax, crude, or borate of soda or of lime, 3c. per lb.; refined borax, 5c. per lb.
16. Chalk, prepared, precipitated, French and red, 1c. per lb.; all other chalk preparations n. s. p. f., 20 per c. ad val.
18. All coal-tar dyes n. s. p. f. 35 per c. ad val.
19. All preparations of coal tar, not dyes, n. s. p. f., 20 per c. ad val.
20. Cobalt, oxide, 30c. per lb.
23. Copperas or sulphate of iron, 3c. per lb.
31. Iodine resublimed, 30c. per lb.
49. Baryta, sulphate of, or barytes, incl. barytes earth, unmanufactured, per ton, $1.12; manufactured, $6.72.
51. Artificial sulphate of barytes, ¼c. per lb.
53. All chromium colors in which lead and bichromate of potash or soda are component parts, dry 4½c. per lb.; in pulp or mixed with water, 4½c. per lb. on the material contained therein when dry.
54. Ocher, sienna, umber and their earths n. s. p. f., dry, per lb. ½c.; ground in oil, 1½c.
55. Ultramarine blue, 4½c. per lb.
57. Vermilion red, and colors containing quicksilver, 12c. per lb.
59. Whiting and Paris white, dry, per lb., ½c.; ground in oil, or putty, 1c.
60. Zinc, oxide of, and white paint containing zinc, but not containing lead; dry, per lb., 1¼c.; ground in oil, 1¾c.
62. *Lead Products.* Acetate of, white, 5½c. per lb.; brown, 3½c.
63. Litharge, 3c. per lb.
64. Nitrate of, 3c. per lb.
65. Orange mineral, 3½c. per lb.
66. Red, 3c. per lb.
67. White lead and white paint containing lead, 3c. per lb.
68. Phosphorus, 20c. per lb.
69. *Potash.* Bichromate and chromate of, 3c. per lb.
70. Caustic or hydrate of, refined in sticks or rolls, 1c. per lb.
71. Hydriodate, iodide, and iodate of, 50c. per lb.
72. Nitrate of, or saltpeter, refined, 1c. per lb.
73. Prussiate of, red, 10c. per lb.; yellow, 5c.
80. *Soda.* Bicarbonate of soda, or supercarbonate of soda or saleratus, 1c. per lb.
81. Hydrate of, or caustic soda, 1c. per lb.
82. Bichromate and chromate of, 3c. per lb.
83. Sal soda, or soda crystals, and soda ash, ¼c. per lb.
84. Silicate of soda, or other alkaline silicate, ½c. per lb.
85. Sulphate of soda, or salt-cake or niter-cake, $1.25 per ton.
88. Sulphur, refined, $8 per ton; sublimed, or flowers of, $10.
93. *Brick and Tile.* Fire-brick, not ornamented or decorated in any manner, $1.25 per ton; glazed or decorated, 45 per c. ad val.
94. Other brick and tiles, not glazed or decorated, 25 per c. ad val.; ornamented and all encaustic, 45 per c. ad val.
95. *Cement, Lime and Plaster.* Roman, Portland and other hydraulic cement, 8c per 100 lbs., incl. weight of barrel or package; in bulk, 7c. per 100 lbs.; other cement, 20 per c. ad val.
96. Lime, 6c. per 100 lbs., incl. weight of barrel or package.
97. Plaster of Paris, ground, $1 per ton; calcined, $1.75.
98. *Clays or Earths.* Unmanufactured, n. s. p. f., $1.50 per ton; manufactured, n. s. p. f., $3, and china clay or kaolin, $3.
123. *Marble and stone, and manufactures of* marble of all kinds in block, rough or squared, 65c. per cub. foot.
124. Veined marble sawed, dressed, or otherwise, $1.10 per cub. foot but no slab shall be computed at less than one inch in thickness).
125. Manufactures of marble n. s. p. f., 50 per c. ad val.
127. *Stone.* Freestone, granite, sandstone, limestone, and other building stone, except marble, unmanufactured, n. s. p. f., 11c. per cub. foot.
128. The same, hewn, dressed, or polished, 40 per c. ad val.
130. *Slate.* All manufactures of slate, n. s. p. f., 30 per c. ad val.
131. Roofing slates, 25 per c. ad val.
132. *Iron and Steel.* Chromate of iron, or chromic ore, 15 per c. ad val.
133. Iron ore, including manganiferous iron ore, residuum from burnt pyrites, 75c. per ton. Sulphur ore, as pyrites, containing not more than 3½ per c. copper, 75c. per ton. But ore containing more than 2 per c. of copper shall pay, in addition thereto, ½c. per lb. for the copper contained therein. Sulphur ore as pyrites or sulphuret of iron in its natural state, containing in excess of 25 per c. of sulphur, shall be free of duty, except on the copper contained therein. No deduction shall be made from the weight of the ore on account of moisture combined therewith.
134. Iron in pigs, iron kentledge, spiegeleisen, ferro-manganese, ferro-silicon, wrought and cast scrap iron, and scrap steel, i. e., waste or refuse iron or steel fit only to be remanufactured, ·3c. per lb.
135. Bar-iron, rolled or hammered, comprising flats not less than 1 in. wide, nor less than ⅛ in. thick, ·8c per lb.; round iron not less than ¾ in. in diameter, and square iron not less than ¾-in. sq., ·9c. per lb.; flats less than 1 in. wide, or less than ⅛ in. thick, round iron less than ¾ in. and not less than $\frac{7}{16}$ in. in diameter, and square iron less than ¾ in. square, 1c. per lb.
136. Round iron, in coils or rods, less than $\frac{7}{16}$ in. in diameter, and bars or shapes of rolled iron, n. s. p. f., 1·1c. per lb. *Provided*, that all iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig-iron, except castings, shall be rated as iron in bars, and be subject to a duty of ·8c. per lb., and none of the iron above enumerated in this paragraph shall pay a less rate of duty than 35 per c. ad. val. *Provided further*, that all iron bars, blooms, billets, or sizes or shapes of any kind, in the manufacture of which charcoal is used as fuel, shall be subject to a duty of not less than $22 per ton.
137. Beams, girders, joists, angles, channels, car-truck channels, T T, columns and posts or parts of such, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, whether plain or punched, or fitted for use, ·9c. per lb.
138. Boiler or other plate iron or steel, except saw-plates, not thinner than No. 10 wire gauge, sheared or unsheared, and skelp iron or steel sheared or rolled in grooves, valued at 1c. per lb. or less, ·5c. per lb.; valued above 1c. and not above 1·4c. per lb., ·65c. per lb.; valued above 1·4c. and not above 2c. per lb., ·8c. per lb.; valued above 2c. and not above 3c. per lb., 1·1c. per lb.; valued above 3c. and not above 4c. per lb., 1·5c. per lb.; valued above 4c. and not above 7c. per lb., 2c. per lb.; valued above 7c. and not above 10c. per lb., 2·8c. per lb.; valued above 10c. and not above 13c. per lb., 3½c. per lb.; valued above 13c. per lb., 45 per c. ad val. *Provided*, that all plate iron or steel thinner than No. 10 wire gauge shall pay duty as iron or steel sheets.
139. Forgings of iron or steel combined, in whatever stage of manufacture, n. s. p. f., 2·3c. per lb. *Provided*, that no such forgings, by whatever process made, shall pay a less rate of duty than 45 per c. ad val.
140. Hoop, or band, or scroll, or other iron or steel, valued at 3c. per lb. or less, 8 in. or less in width, and less than ⅛ in. thick, and not thinner than No. 10 wire gauge, 1c. per lb.; thinner than No. 10 wire gauge, and not thinner than No. 20 wire gauge, 1·1c. per lb.; thinner than No. 20 wire gauge, 1·3c. per lb. *Provided*, that hoop or band iron or steel, cut to length, or wholly or partially manufactured into hoops or ties for baling purposes, barrel hoops of iron or steel, and hoop or band iron or steel flared, splayed or punched, with or without buckles or fastenings, shall pay ·2c. per lb. more duty than that imposed on the hoop or band iron or steel from which they are made.
141. Railway bars, made of iron or steel, or made in part of steel, T-rails, and punched iron or steel flat rails, ·6c. per lb.
142. Sheets of iron or steel, common or black, including all iron or steel commercially known as common or black taggers iron or steel, and skelp iron or steel, valued at 3c. per lb. or less: Thinner than No. 10 and not thinner than No. 20 wire gauge, 1c. per lb.; thinner than No. 20 wire gauge, and not thinner than No. 25 wire gauge, 1·1c. per lb.; thinner than No. 25 wire gauge, 1·4c. per lb.; corrugated or crimped, 1·4c. per lb. *Provided*, that all common or black sheet-iron or sheet-steel not thinner than No. 10 wire gauge shall pay duty as plate iron or plate steel.
143. All iron or steel sheets or plates, and all hoop, band, or scroll iron or steel, excepting what are known commercially as tin plates, terne plates and taggers tin, when galvanized or coated with zinc or spelter, or other metals, or any alloy of those metals, shall pay ¼c. per lb. more duty than the rates imposed by the preceding paragraph upon the corresponding gauges, or forms, of common or black sheet or taggers iron or steel; and on and after July 1st, 1891, all iron or steel sheets, or plates, or

taggers iron coated with tin or lead, or with a mixture of which these metals or either of them is a component part, by the dipping or any other process, and commercially known as tin plates, terne plates, and taggers tin, shall pay 2·2c. per lb. *Provided*, that on and after July 1st, 1891, manufactures of which tin, tin plates, terne plates, taggers tin, or either of them, are component materials of chief value, and all articles, vessels or wares manufactured, stamped or drawn from sheet-iron or sheet-steel, such material being the component of chief value, and coated wholly or in part with tin or lead, or a mixture of which these metals or either of them is a component part, shall pay a duty of 55 per c. ad. val. *Provided further*, that on and after October 1st, 1897, tin plates and terne plates lighter in weight than 63 lbs. per 100 sq. ft. shall be admitted free of duty, unless it shall be made to appear to the satisfaction of the President (who shall thereupon by proclamation make known the fact) that the aggregate quantity of such plates lighter than 63 lbs. per 100 sq. ft. produced in the United States during either of the six years next preceding June 30th, 1897, has equaled ¼ the amount of such plates imported and entered for consumption during any fiscal year after the passage of this act, and prior to said October 1st, 1897. *Provided*, that the amount of such plates manufactured into articles exported, and upon which a drawback shall be paid, shall not be included in ascertaining the amount of such importations. *And provided further*, that the amount or weight of sheet iron or sheet steel manufactured in the United States and applied or wrought in the manufacture of articles or wares tinned or terne-plated in the United States, with weight allowance as sold to manufacturers or others, shall be considered as tin and terne plates produced in the United States.

144. Sheet-iron or sheet-steel, polished, planished, or glanced, 2½c. per lb. *Provided*, that other plate or sheet or taggers iron or steel, pickled or cleaned by acid, or by any other material or process, or cold-rolled, smoothed only, not polished, shall pay ¼c. per lb. more duty than the corresponding gauges of common or black sheet or taggers iron or steel.

145. Sheets or plates of iron or steel, or taggers iron or steel, coated with tin or lead, or with a mixture of which these metals, or either of them, is a component part, by the dipping or any other process, and commercially known as tin plates, terne plates, and taggers tin, 1 c. per lb. until July 1st, 1891.

146. Steel ingots, cogged ingots, blooms, and slabs, by whatever process made; die blocks or blanks; billets and bars and tapered or beveled bars; steamer, crank, and other shafts; shafting; wrist or crank pins; connecting-rods and piston-rods; pressed, sheared, or stamped shapes; saw-plates, wholly or partially manufactured; hammer-molds or swaged-steel; gun-barrel molds not in bars; alloys used as substitutes for steel tools; all descriptions and shapes of dry sand, loam, or iron-molded steel castings; sheets and plates n. s. p. f.; and steel in all forms and shapes n. s. p. f.; all of the above valued at 1c. per lb. or less, ·4c. per lb.; valued above 1c. and not above 1·4c. per lb. ·5c. per lb.; valued above 1·4c. and not above 1·8c. per lb., ·8c. per lb.; valued above 1·8c. and not above 2·2c. per lb., ·9c per lb.; valued above 2·2c., and not above 3c. per lb., 1·2c. per lb.; valued above 3c. and not above 4c. per lb., 1·6c. per lb.; valued above 4c. and not above 7c. per lb., 2c. per lb.; valued above 7c. and not above 10c. per lb., 2·8c. per lb.; valued above 10c. and not above 13c. per lb., 3½c. per lb.; valued above 13c. and not above 16c. per lb., 4·2c. per lb.; valued above 16c. per lb., 7c. per lb.

147. *Wire.* Wire rods: Rivet, screw, fence and other iron or steel wire rods and nail rods, not smaller than No. 6 wire gauge, valued at 3½c. or less per lb., ·6c. per lb.; and iron or steel, flat, with longitudinal ribs for the manufacture of fencing, valued at 3c. or less per lb., ·6c. per lb. *Provided*, that all iron or steel rods, whether rolled or drawn through dies, smaller than No. 6 wire gauge, shall be classed and dutiable as wire.

148. Wire made of iron or steel, not smaller than No. 10 wire gauge, 1¼c. per lb.; smaller than No. 10, and not smaller than No. 16 wire gauge, 1¾c. per lb.; smaller than No. 16 and not smaller than No. 26 wire gauge, 2½c. per lb.; smaller than No. 26 wire gauge, 3c. per lb. *Provided*, that no article made from iron or steel wire, or of which iron or steel wire is a component part of chief value, shall pay a less rate of duty than the iron or steel wire from which it is made either wholly or in part. *And provided further*, that iron or steel wire nettings made in meshes of any form shall pay a duty equal in amount to that imposed on iron or steel wire used in the manufacture of iron or steel wire nettings, and 2c. per lb. in addition thereto.

There shall be paid on iron and steel wire coated with zinc or tin, or any other metal (except fence wire and iron or steel, flat, with longitudinal ribs for the manufacture of fencing), ½c. per lb. in addition to the rate imposed on the wire of which it is made; on iron wire rope and wire strand, 1c. per lb. in addition to the rate imposed on the wire of which it is made; on steel wire rope and wire strand, 2c. per lb. in addition to the rate imposed on the wire of which they or either of them are made. *Provided*, that all iron or steel wire valued at more than 4c. per lb. shall pay a duty of not less than 45 per c. ad val.

149. No allowance or reduction of duties for partial loss or damage in consequence of rust or discoloration shall be made upon iron or steel, or any article wholly or partly manufactured.

150. All metal produced from iron or its ores, which is cast and malleable, without regard to the percentage of carbon contained therein, whether produced by cementation, or converted, cast, or made from iron or its ores, by the crucible, Bessemer, Clapp-Griffiths, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable iron castings, shall be classed as steel.

151. No article n. s. p. f., wholly or partly manufactured from tin plate, terne plate, or the sheet, plate, hoop, band, or scroll iron or steel herein provided for, shall pay a lower rate of duty than that imposed on the tin plate, terne plate or sheet plate, hoop, band or scroll iron or steel from which it is made.

152. On all iron or steel bars or rods which are cold rolled, cold hammered, or polished in any way in addition to the ordinary process of hot rolling or hammering, there shall be paid ¼c. per lb. in addition to the rates provided in this act; and on all strips, plates, or sheets of iron or steel, other than the polished, planished, or glanced sheet-iron or sheet-steel before provided for, which are cold rolled, cold hammered, blued, brightened, tempered or polished by any process to such perfected surface finish, or polish better than the grade of cold rolled, smooth only, before provided for, there shall be paid 1¼c. per lb. in addition to the rates provided in this act upon plates, strips or sheets of iron or steel of common or black finish; and on steel circular saw plates there shall be paid 1c. per lb. in addition to the rate provided in this act for steel saw plates.

157. Boiler or other tubes, pipes, flues or stays of wrought-iron or steel, 2½c. per lb.

160. Cast-iron pipe of every description, ·9c. per lb.

162. Castings of malleable iron, 1¼c. per lb.

173. *Nails, spikes, tacks and needles.* Cut nails and cut spikes of iron or steel, 1c. per lb.

174. Horseshoe nails, hob nails, and all other wrought-iron or steel nails, 4c. per lb.

175. Wire nails made of wrought iron or steel, 2 inches long and longer, not lighter than number 12 wire gauge, 2c. per lb.; from 1 to 2 inches in length, and lighter than number 12 and not lighter than number 16 wire gauge, 2½c. per lb.; shorter than 1 inch and lighter than number 16 wire gauge, 4c. per lb.

176. Spikes, nuts and washers, and horse, mule or ox shoes, of wrought iron or steel, 1·8c. per lb.

181. Railway fish-plates or splice-bars, made of iron or steel, 1c. per lb.

182. Rivets of iron or steel, 2½c. per lb.

185. Wheels, or parts thereof, made of iron or steel, and steel-tired wheels for railway purposes, whether wholly or partly finished, and iron or steel locomotive, car, or other railway tires or parts thereof, wholly or partly manufactured, 2½c. per lb.; and ingots, cogged ingots, blooms, or blanks for the same, without regard to the degree of manufacture, 1¼c. per lb. *Provided*, that when wheels or parts thereof, of iron or steel, are imported with iron or steel axles fitted in them, the wheels and axles together shall be dutiable at the same rate as is provided for the wheels when imported separately.

186. *Miscellaneous Metals.* Aluminum in crude form, alloys of any kind in which aluminum is the component material of chief value, 15c. per lb.

187. Antimony, as regulus or metal, ¾c. per lb.

188. Argentine, albata, or German silver, unmanufactured, 25 per c. ad val.

189. Brass, in bars or pigs, old brass, clippings from brass or Dutch-metal, and old sheathing, or yellow metal, fit only for remanufacture, 1¼c. per lb.

190. Bronze powder, 12c. per lb.; bronze or Dutch-metal, or aluminum, in leaf, 8c. per package of 100 leaves.

191. *Copper.* Imported in the form of ores, ¼c. per lb. on each lb. of fine copper contained therein.

192 Old, fit only for remanufacture, clippings from new, and all composition metal of which copper is a component material of chief value, n. s. p. f., 1c. per lb.

193. Regulus of, and black or coarse copper, and copper cement, 1c. per lb. on each lb. of fine copper contained therein.

194. In plates, bars, ingots, Chili or other pigs, and in other forms, not manufactured, n. s. p. f., 1¼c. per lb.

195. In rolled plates, called braziers' copper, sheets, rods, pipes, and bottoms, also sheathing or yellow metal of which copper is the component material of chief value, and not composed wholly or in part of iron ungalvanized, 35 per c. ad val.

196. *Gold and Silver.* Bullions and metal thread of gold, silver, or other metals n. s. p. f., 30 per c. ad val.

*Lead.* 199. Ore and dross, 1¼c. per lb. *Provided*, that silver ore and all ores containing lead shall pay a duty of 1¼c. per lb. on the lead contained therein, according to sample and assay at the port of entry.

200. In pigs and bars, molten and old refuse, run into blocks and bars, and old scrap-lead fit only to be remanufactured, 2c. per lb.

201. In sheets, pipes, shot, glaziers' and wire, 2½c. per lb.

202. Metallic mineral substances in a crude state and metals unwrought, n. s. p. f. in this act, 20 per c. ad val.; mica, 35 per c. ad val.

203. *Nickel.* Nickel, nickel oxide, alloy of any kind in which nickel is the component material of chief value, 10c. per lb.

207. Quicksilver, 10 c. per lb.: the flasks, or other vessels in which quicksilver is imported shall be subject to the same rate of duty as if imported empty.

208. Type-metal, 1½ c. per lb.; for the lead contained therein; new types, 25 per c. ad val.

209. Tin. On and after July 1st, 1893, there shall be imposed and paid upon cassiterite or black oxide of tin, and upon bar, block, and pig tin, a duty of 4c. per lb. *Provided*, that unless it shall be made to appear to the satisfaction of the President of the United States (who shall make known the fact by proclamation) that the product of the mines of the United States shall have exceeded 5,000 tons of cassiterite, and bar, block, and pig tin in any one year prior to July 1st, 1895, then all imported cassiterite, bar, block, and pig tin shall after July 1st, 1895, be admitted free of duty.

212. *Zinc or Spelter.* In blocks or pigs, 1¼c. per lb.

213. In sheets, 2½c. per lb.

214. Old and worn out, fit only to be remanufactured, 1½ c. per lb.

215. Manufactures, n. s. p. f., composed wholly or in part of iron, steel, lead, copper, nickel, pewter, zinc, gold, silver, platinum, aluminum, or any other metal, and whether partly or wholly manufactured, 45 per c. ad val.

322. Salt in bags or other packages, 12c. per 100 lbs.; in bulk, 8c. per 100 lbs.

328. There shall be allowed on the imported tin-plate used in the manufacture of cans, and all articles of tinware exported, either empty or filled with domestic products, a drawback equal to the duty paid on such tin plate, less 1 per c. of such duty, which shall be retained for the use of the United States.

432. Coal, bituminous, and shale, 75c. per ton of 28 bushels, 80 lbs. to the bushel; coal slack or culm, such as will pass through a ½ inch screen, 30c. per ton of 28 bushels, 80 lbs. to the bushel.

433. Coke, 20 per c. ad val.

437. Emery grains, and emery manufactured, ground, pulverized, or refined, 1c. per lb.

439. *Explosive Substances.* Fulminates, fulminating powders and like articles n. s. p. f., 30 per c. ad val.

440. Gunpowder, and all explosive substances used for mining, blasting, artillery, or sporting purposes, when valued at 20c. or less per lb., 5c. per lb.; valued above 20c. per lb., 8c. per lb.

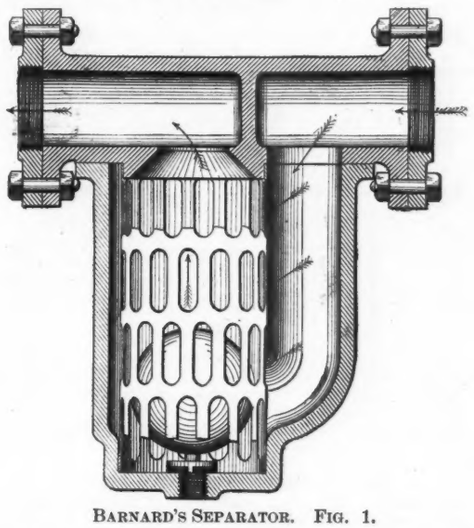
459. *Miscellaneous Manufactures.* Manufactures of alabaster, amber, asbestos, bladders, coral, cat-gut or whip-gut, or worm-gut, jet, paste, spar, wax, or of which these substances or either of them is the component material of chief value, n. s. p. f., 25 per c. ad val.

*Free List.*—473. Acids used for medicinal, chemical, or manufacturing purposes n. s. p. f.; 478. Alizarine, natural or artificial, and dyes commercially known as Alizarine; 481. Aniline salts; 485. Antimony ore, crude sulphite of; 486. Apatite; 487. Argal, or argol, or crude tartar; 489. Arsenic and sulphide of, or orpiment; 490. Arseniate of aniline; 494. Asbestos, unmanufactured; 495. Ashes, wood and lye of, and beet-root ashes; 496. Asphaltum and bitumen, crude; 500. Baryta, carbonate of, or witherite; 501. Bauxite, or beauxite; 503. Bells, broken, and bell metal broken and fit only to be remanufactured; 506. Bismuth; 508. Blood, dried; 520. Breccia, in block or slabs; 521. Bromine; 522. Bullion, gold or silver; 525. Cadmium; 526. Calamine; 530. Cerium; 531. Chalk, unmanufactured; 532. Charcoal; 535. Common blue clay in casks suitable for the manufacture of crucibles; 536. Coal, anthracite; 537. Coal stores of American vessels; but none shall be unloaded; 538. Coal-tar, crude; 539. Cobalt and cobalt-ore; 546. Copper, old, taken from the bottom of American vessels compelled by marine disaster to repair in foreign ports; 547. Coral, marine, uncut and unmanufactured; 550. Cryolite, or kryolith; 562. Emery ore; 568. Feldspar. 574. Flint, flints, and ground flint stones; 600. Guano, manures, and all substances expressly used for manure; 615. Iodine, crude; 617. Iridium; 624. Kieserite; 625. Kyanite, or cyanite and kainite; 629. Lava, unmanufactured; 634. Lime, citrate of; 635. Lime, chloride of, or bleaching powder; 638. Loadstones; 640. Magnesite, or native mineral carbonate of magnesia; 641. Magnesium; 642. Magnets; 643. Manganese, oxide and ore of; 651. Minerals, crude, or not advanced in value or condition by refining or grinding, or by other process of manufacture, n. s. p. f. in this act; 652. Models of inventions and of other improvements in the arts, including patterns for machinery, but no article shall be deemed a model or pattern which can be fitted for use otherwise; 667. Ores, of gold, silver and nickel, and nickel matte; *provided*, that ores of nickel and nickel matte, containing more than 2 per c. of copper, shall pay a duty of ½ c. per lb. on the copper contained therein; 668. Osmium; 669. Palladium. 671. Paraffine; 676. Pewter and britannia metal, old, and fit only to be remanufactured; 677. Philosophical and scientific apparatus, instruments and preparations; paintings, drawings and etchings, specially imported in good faith for the use of any society or institution incorporated or established for philosophical, educational, or scientific, or literary purposes, and not intended for sale; 678. Phosphates, crude or native; 680. Plaster of Paris and sulphate of lime, unground; 681. Platina, in ingots, bars, sheets and wire; 682. Platinum, unmanufactured, and apparatus and parts thereof composed of platinum, for chemical uses; 683. Plumbago; 684. Polishing stones; 685. Potash, crude, carbonate of, or "black salts." Caustic potash, or hydrate of, not including refined in sticks or rolls. Nitrate of potash, or saltpeter, crude. Sulphate of potash, crude or refined. Chlorate of potash. Muriate of potash; 688. Pumice; 709. Soda, nitrate of, or cubic nitrate, and chlorate of; 710. Sodium; 712. Specimens of natural history, botany and mineralogy, when imported for cabinets or as objects of science, and not for sale; 723. Stone and sand: Burr-stone in blocks, rough or manufactured, and not bound up into mill-stones; cliff-stone, unmanufactured, pumice-stone, rotten-stone, and sand, crude or manufactured; 725. Strontia, oxide of, and protoxide of strontian, and strontianite, or mineral carbonate of strontia; 727. Sulphur, lac or precipitated, and sulphur or brimstone, crude, in bulk, sulphur ore, as pyrites, or sulphuret of iron in its natural state, containing in excess of 25 per c. of sulphur (except on the copper contained therein) and sulphur not otherwise provided for; 728. Sulphuric acid which at the temperature of 60° F. does not exceed the sp. gr. of 1·380, for use in manufacturing superphosphate of lime or artificial manures of any kind, or for any agricultural purposes; 731. Tar and pitch of wood, and pitch of coal-tar; 734. Terra alba; 736. Tin ore, cassiterite or black oxide of tin, and tin in bars, blocks, pigs, or grain or granulated, until July 1st, 1893, and thereafter as otherwise provided for in this act; 740. Tripoli; 745. Types, old, and fit only to be remanufactured; 746. Uranium, oxide and salts of; 749. Verdigris, or subacetate of copper; 761. Zaffer.

Sec. 4. That there shall be paid on the importation of all unmanufactured articles n. s. p. f. a duty of 10 per cent. ad val.; and on all articles manufactured, in whole or in part, not provided for, a duty of 20 per cent. ad val. Sec. 5. That each and every imported article not enumerated in this act, which is similar, either in material, quality, texture, or the use to which it may be applied, to any article enumerated in this act as chargeable with duty, shall pay the same rate of duty which is levied on the enumerated article which it most resembles; and if any non-enumerated article equally resembles two or more enumerated articles on which different rates of duty are chargeable, there shall be levied on such non-enumerated article the same rate as is chargeable on the article which it resembles paying the highest rate of duty; and on articles not enumerated, manufactured of two or more materials, the duty shall be assessed at the highest rate at which the same would be chargeable if composed wholly of the component material thereof of chief value. Sec. 14. That machinery for repair may be imported into the United States without payment of duty, under bond, to be given in double the appraised value thereof, to be withdrawn and exported after said machinery shall have been repaired, all such bonds being limited to not more than six months from the date of the importation. Sec. 24. That the works of manufactures engaged in smelting or refining metals in the United States may be designated as bonded-warehouses under such regulations as the Secretary of the Treasury may prescribe; *provided*, that such manufacturers shall first give satisfactory bonds to the Secretary of the Treasury. Metals in any crude form requiring smelting or refining to make them available in the arts, imported into the United States to be smelted or refined and intended to be exported in a refined but unmanufactured state, shall, under such rules as the Secretary of the Treasury may prescribe, be removed in original packages or in bulk from the vessel or other vehicle on which it has been imported, or from the bonded-warehouse in which the same may be into the bonded-warehouse in which such smelting and refining may be carried on, for the purpose of being smelted and refined without payment of duties thereon; *provided*, that each day a quantity of refined metal equal to the amount of imported metal refined that day shall be set aside, and such metal shall not be taken from said works except for exportation, under the direction of the proper officer, whose certificate, describing the articles by their marks or otherwise, the quantity, the date of importation, and the name of vessel or other vehicle by which it was imported, with such additional particulars as may from time to time be required, shall be received by the collector of customs as sufficient evidence of the exportation of the metal. Sec. 25. That where imported materials on which duties have been paid are used in the manufacture of articles produced in the United States, there shall be allowed on the exportation of such articles a drawback equal in amount to the duties paid on the materials used, less 1 per centum of such duties.

## THE LATEST SAFETY SEPARATOR.

Many have been the contrivances to arrest and avert the wrecking of steam engines by excessive quantities of water accidentally admitted to the cylinders from priming, over-feeding, condensation and other causes. The fact that there is always room for improvement in this direction keeps inventors and engineers on the alert. Another of these devices has lately been invented by Mr. H. C. White, of the Phœnix Iron Works (the inventor of the new tandem compound engine), and is being manufactured by the Barnard Engineering Company, of 15 Cortlandt street, New York. The annexed illustration (Fig. 1) conveys a general idea of the mechanism of the Barnard separator.



BARNARD'S SEPARATOR. FIG. 1.

The upper part is a flanged tee. Cast across its "run," as shown, is a wall that diverts the steam and entrained water down into the lower part or body of the separator. The plan view is pear-shaped, and within the larger diameter is a perforated pipe or heavy brass wire mesh in the form of a cylinder extending from top to bottom, which acts as a guide for the ball float seen in the illustration, and presents no obstruction to the flow of either steam or water. The steam, relieved of its entrained water, passes freely through the outlet side of the tee to the engine. The direction of the steam and limits of the movements of the ball float are indicated in Fig. 2.

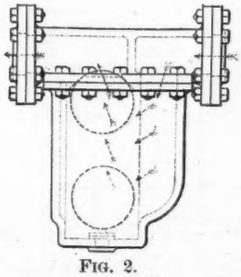


FIG. 2.

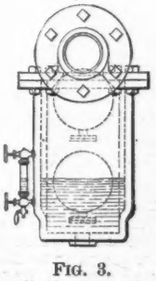


FIG. 3.

The water is drained off through a drip pipe at the bottom, controlled by any form of steam trap in the usual way. With the discharge of the water (the amount of which is indicated by the gauge seen in Fig. 3) the ball float has nothing to do, as it rises on the surface. In case of any unusual flow of water into the separator, greater than can be discharged by the drip pipe, the ball is floated to the top of the cylinder and is seated against the contracted opening as shown in dotted lines in Fig. 3 and effectually seals the outlet side, preventing the water from entering the steam pipe to the cylinder.

## REPORT OF THE DIRECTOR OF THE MINT.

Edward O. Leech, the Director of the Mint, has submitted to the Secretary of the Treasury a report of the operations of the mints and assay offices for the fiscal year ended June 30, 1890.

### DEPOSITS AND PURCHASES OF GOLD AND SILVER.

The value of the gold received was $49,228,823.56, of which $30,474,900.25 was domestic bullion, $7,990,706.22 foreign coin and bullion, $655,474.96 light weight domestic gold coins, $3,542,013.83 old plate, jewelry, etc., and $6,565,728.30 redeposits.

The silver aggregated 37,438,788·17 standard ounces, of the coining value of $43,565,135.15, of which $37,736,902.64 was domestic bars, $2,394,706.15 foreign silver bullion, $1,229,784.75 foreign silver coins, $594,883.74 uncurrent subsidiary coins, $8,010 84 trade dollars, $680,430.65 old plate, jewelry, etc., and $920,416.38 redeposits.

### COINAGE.

The coinage was the largest in the history of the mint, aggregating 112,698,071 pieces as follows:

| | Pieces. | Value. |
|---|---|---|
| Gold | 1,257,207 | $22,021,748.50 |
| Silver dollars | 35,923,816 | 35,923,816.00 |
| Subsidiary silver | 8,850,269 | 892,020.70 |
| Minor coins | 66,666,779 | 1,416,851.73 |
| Total | 112,698,071 | $60,254,436.93 |

### GOLD AND SILVER BARS MANUFACTURED.

Gold and silver bars were manufactured as follows:

| | |
|---|---|
| Gold | $23,342,433.34 |
| Silver | 7,045,357.80 |
| | $30,387,791.14 |

### MEDALS MANUFACTURED.

Medals were manufactured at the mint at Philadelphia as follows:

| | |
|---|---|
| Gold | 133 |
| Silver | 2,199 |
| Bronze | 368 |
| Total | 2,700 |

### GOLD BARS EXCHANGED FOR GOLD COIN.

Gold bars were exchanged for gold coin, free of charge, of the value of $16,357,677.70.

### IMPORTS AND EXPORTS OF GOLD AND SILVER.

The imports and exports of the precious metals during the fiscal year aggregated as follows:

| | Imports. | Exports. | Net loss. |
|---|---|---|---|
| Gold | $11,097,146 | $17,350,193 | $4,253,047 |
| Silver | 27,521,147 | 36,069,602 | 8,545,455 |

### PURCHASES OF SILVER.

The total amount of silver purchased during the fiscal year for coinage of silver dollars was 30,912,111·17 standard ounces costing $26,899,326.33, an average of $0.96·68 per fine ounce.

From the close of the fiscal year to August 13th, the date the new silver act went into effect, the amount of silver purchased was 3,108,199·47 standard ounces, costing $3,049,462.46.

The total purchases of silver for the coinage of silver dollars from March 1, 1878, to Aug. 12th, 1890, was 323,635,576·19 standard ounces, costing $308,199,261.71, an average of $1.05·8 per fine ounce.

The amount of silver bullion purchases under the act of July 14, 1890, which went into effect August 13th, to October 31st has been 12,276,578·10 fine ounces, at a cost of $14,038,168.82, an average of $1.14·349 per fine ounce.

### SEIGNIORAGE.

The Seigniorage on the coinage of silver dollars during the year aggregated $9,385,416.57, and on subsidiary silver, $1,649.80; a total of $9,387,066.37.

The net profits on the coinage of silver during the 12 years ended June 30th, 1890, including the balance in the coinage mints July 1st, 1878, has been $65,698,057.41.

### DISTRIBUTION OF SILVER DOLLARS.

The number of silver dollars distributed from the mints during the fiscal year was 11,423,869.

### COURSE OF SILVER.

There was a marked improvement in the price of silver during the last fiscal year. At the commencement of the year the price was 42 pence, and at the close 47¾ pence, an advance of 5¾ pence, equal to $0.12 6/10.

The average price of silver for the fiscal year was $0.96·883 per fine ounce.

Since the close of the fiscal year the fluctuations in the price of silver have covered a wide range. To July 14th the price advanced to $1.08 an ounce, and to August 13th to $1.13 per ounce.

The highest price reached in New York was $1.21 on August 19th, and in London 54⅛ pence, equivalent to $1.19⅜ on September 3d.

The price in New York did not vary materially from the 19th of August to the 3d of September, when a decline took place, extending, with occasional slight advances, to the present price ($1.07).

The price of silver in London at the date of the passage of the act of February 28th, 1878, was 55 pence, equivalent to $1.20·5 per fine ounce.

From that time until May 19, 1888, when the lowest price was reached, the decline in the price of silver was, with slight intermissions, uniform, the lowest price reached being 41⅛ pence, equivalent to $0.91·24 per fine ounce.

### STOCK OF MONEY IN THE UNITED STATES.

The director of the mint estimates the stock of metallic money in the United States on July 1st, 1890, to have been: Gold, $695,563,029; silver, $463,211,919; total, $1,158,774,948.

The total amount of metallic and paper money in circulation, exclusive of the holdings of the treasury, on June 30, 1890, was $1,435,610,612, a per capita of $22.09 against $1,384,418,091 at the commencement of the fiscal year, an increase in circulation of $55,192,521.

The number of silver dollars in circulation June 30, 1890, was 56,278,749 against 54,457,299 at the commencement of the year, while the number of silver dollars owned by the people, that is, silver dollars and silver certificates in actual circulation, aggregated $353,834,987 against $311,612,864 at the commencement of the fiscal year.

The number of silver dollars owned by the Treasury, June 30, 1890, was 15,591,479 against 21,889,786 on July 1, 1889.

### GOLD AND SILVER USED IN THE ARTS.

The value of the precious metals used during the last year in the industrial arts in the United States was approximately: Gold, $10,697,000; silver, $8,767,000, of which $9,686,827 gold, and $7,297,933 silver were domestic gold and silver bullion.

### PRODUCT OF GOLD AND SILVER.

The product of gold from the mines of the United States during the calendar year 1889 was $32,800,000; silver, 50,000,000 fine ounces, commercial value, $46,750,000, coining value, $64,646,464.

The product of the mines and smelters of the United States during the same year was: Gold, 2,527.892 troy ounces; silver, 60,236,469 troy ounces.

Revised tables are presented, showing the product of gold and silver in the world during the calendar years 1887, 1888 and 1889:

| | | Silver. | | |
|---|---|---|---|---|
| | Gold. | Fine ounces. | Commercial value. | Coining value. |
| 1887 | $105,775,000 | 96,141.000 | $94,048.000 | $124, 04,000 |
| 1888 | 110,244,000 | 108,888.000 | 102.243,000 | 140.784,000 |
| 1889 | 121,162.000 | 124,769,000 | 116,674,000 | 161,318,000 |

The coinage of the world for the same calendar years was as follows:

| | Gold. | Silver. |
|---|---|---|
| 1887 | $124,992,465 | $163.411,397 |
| 1888 | 144,828,855 | 134,9 2,344 |
| 1889 | 168,901,519 | 135,602,064 |

The recoinages reported to the Bureau were as follows:

| | Gold. | Silver. |
|---|---|---|
| 1888 | $25,562.061 | $13.516,249 |
| 1889 | 17,815,766 | 8,651,107 |

### EXPENSES OF THE MINT SERVICE.

The total expenses of the mint service aggregated $1,319,436.25.

The total earnings from all sources were $10,809,857.01, and the total loss and expenditures $1,576.927.99, leaving a net profit of earnings over expenditures during the fiscal year of $9,232,929.02.

### LEGISLATION.

The Director reviews the coinage legislation of the Fifty-first Congress and recommends the following measures for the action of Congress:

1. Repeal or modification of the act of May 26, 1832, authorizing the exchange of gold bars for gold coin.
2. Recoinage of the subsidiary coins in the Treasury.
3. The use of the proceeds of by-products of the acid refineries for the expenses of the same.
4. A new mint at Philadelphia.

## ARTISTIC METAL-WORK IN JAPAN.—I.

By Adolf Meyer.

Edited, with notes, by R. W. Raymond.

Since the opening of communication with this highly interesting country, people on both sides of the Atlantic have had the opportunity of seeing and admiring many objects of Japanese art, the elaborate and faultless execution of which is often puzzling and always astonishing. Concerning the history and development of this art a few words must suffice here.

About the year 500 of our era, the Japanese conquered Corea, and held it in possession for some two hundred years. They found there a well-developed art industry, closely connected with that of the Chinese, and a mining industry which furnished the crude metallic materials of the native artists. Recognizing in many departments the superiority of the Corean civilization, the conquerors engaged for the Japanese service Corean and Chinese teachers, priests, miners, metal workers, etc.

At the same time they adopted the Chinese written language, and began at once not only to keep careful contemporaneous records, but also to put into this form the traditions received, by oral transmissions only, from their ancestors. Hence trustworthy Japanese history begins with the epoch of the Corean occupation. For events of earlier date, authorities are scanty, and data must be collected mostly from Chinese sources.

Many Japanese mines have records going as far back as the first introduction of mining into the empire. Before that time, the Japanese seem to have been only warriors and field laborers. A few specimens of arms and implements are still extant, which belong beyond doubt to an age before the conquest of Corea; but they are very clumsy indeed.

The subsequent social development of Japanese conditions brought about the situation exhibited in the middle of the present century—a Mikado without power, and an empire divided into some twelve provinces governed by almost independent princes (Daimios), each having a standing army of warriors, who formed a noble class (the Samurai).

These warriors received fixed salaries in the form of rice and money for their families. Their profession was fighting for the interest of their Daimios, and they did not deem it honorable to work for money. Nevertheless, many Samurai excelled in one way or other in working metals, the product of their skill being mostly used as presents to their friends or superiors.

No doubt it was during the intervals of peace that the dandies of the armies took up the fashion of decorating their arms, which seems to have furnished the impulse and direction for the principal early development of art-industry in metals, and led to the practice of an astonishing number of methods of treatment. I am much inclined to suppose that the processes of casting, etc., not directly involved in the simple manufacture of arms, were all developed, nevertheless, as accessory to the art of decorating weapons.

We may consider the Japanese artistic metal-work under the following heads:

1. Forgings, such as swords and other weapons.
2. Castings in bronze (vases, statuettes, mirrors, etc).
3. The coloring of metals and alloys.
4. Sculpture in metals.
5. Mechanical combinations of metals.
6. Combinations with other materials (*cloisonné*, lacquer, etc).

1. *Forgings.*—Japanese swords are highly interesting specimens of an art, famous masters of which can be recognized as far back as a thousand

years ago. The literature of sword-making and sword-makers, their trade-marks and peculiarities, is very voluminous; and swords are determined to be the handiwork of famous ancient artists, by certain peculiarities known to connoisseurs who practice this critical science as a specialty. I myself own a sword without trade-mark, which has been recognized by every competent native authority I have consulted, as the work of a certain master, who lived some 850 years ago. Yet I am unable to see any essential difference between this genuine antique and another sword, only 30 years old.

Upon examination of a Japanese sword, we find, as the first peculiarity, that the edge is hardened steel, while the body of the blade is soft. In cheap and worthless swords the body is single wrought iron; in those of fine quality and high price, it exhibits thin alternate layers of steel and iron, a real "damask," of various degrees of fineness. I have found it difficult to get information about the method of producing this structure. The Japanese are very reserved on the subject. I have been told, however, that the swords are made by first welding together several thin pieces of iron and steel, then breaking the pile in two, doubling and re-welding, and repeating this operation many times. This account seems to be confirmed by the fact that swords showing a very distinct damask, like those of India, are not considered as fine in quality or rated as high in price as those on which the damask appears somewhat veiled, a natural consequence of repeated heating, during which the iron would absorb some carbon from the steel, so that the single layers could not any longer be easily distinguished.

The union of the body with the edge is a single welding, but a great variety of lines, waves and arabesques, like decorative designs, may be found at the junction of the two materials, indicating that there must have been hundreds of methods of manipulating the weld for fancied considerations of use or beauty. The reason for the combination of soft metal with hard steel is obvious. The swords were doubtless made at first either of iron (which would not cut through the iron cuirasses, helmets, etc., of enemies) or of steel (which probably was always too hard and broke too easily). Apparently, the Japanese sword-makers never acquired a thorough knowledge of tempered steel, and their only remedy for the difficulty was the art of welding iron and steel, which they certainly brought to an extraordinary degree of perfection. The peculiar polish of the surface is said to be produced by the application of a slime of fine quartz, which takes off more iron than steel, and thus renders the damask visible, imparting a high polish to the iron, while it leaves the steel a little dull or "mat." But there must be some further peculiarity in the process, for I have never been able to produce the result satisfactorily in this way.

I would recommend strongly to any one who has the opportunity of examining a Japanese sword, the study of the surface with the aid of a magnifying glass. Peculiar and interesting details will thus be brought out, in every sword. In particular, there may often be seen under the magnifier, near the boundary between iron and steel, bright spots, about half a millimeter square, which look like crystals; though this manufacture gives no opportunity for the formation of crystals, and indeed if such were formed, they would necessarily be destroyed by the repeated hammering and welding.

Concerning the methods employed for producing the iron and steel required, I have been able to gain but an imperfect knowledge. The only Japanese metallurgical apparatus is a hearth, similar to the German *Garherd*, either perfectly open, or covered at the side on which the blast is introduced. The size of the hearth varies according to the kinds of ore to be treated—whether lead, copper, or iron ore. With this apparatus the Japanese make both wrought iron (directly out of high grade magnetic ore) and also cast iron. Their wrought iron comes into market to-day in the form which it very likely had 1,000 years ago, namely, in billets about ten inches long, two inches square in the middle, and one inch square at either end. The quality is very irregular. I have no doubt that the iron used for swords was made with special care from the selection of the ore and charcoal at the beginning, through all steps to the end. How the ancient artificers made their steel, I have never been authoritatively informed.

[NOTE.—No doubt some such process as that by which the Indian "wootz" steel is produced may have been practiced by them. It must be borne in mind that it is easier to make steel than wrought iron or cast iron. The difficulty is, to make (by simple ancient *direct* processes) steel of a desired quality with certainty and uniformity. Now in this, as in many other of the processes concerning which it is the fashion to wonder at the skill of early operators, it is well to remember that we have no proof that they could do with precision and certainty what they set out to do. The remarkable quality of their best work may be the result of *selection among products*, not of complete control of processes. With respect to the magic mirrors, for instance, mentioned by Mr. Mezger a little further on in this article, we have it on the excellent authority of Professor Mendenhall, who has made a special study of the subject, that the Japanese mirror-makers did not know for generations that some of their mirrors possessed this quality, which was first recognized as a peculiarity of certain *Chinese* metallic mirrors; and that, even after it had been discovered that some of their mirrors were "magic mirrors," and, as such, would command an extra price from connoisseurs, they did not know how to produce such articles at will, but went on, as perhaps they are still doing, to make mirrors in their accustomed way, and find out afterward which of them had the mysterious quality. On this head see my subsequent note. I adduce the illustration here, simply as bearing upon the proposition that selection of products may, in many cases, particularly of chemical and metallurgical arts, account for much of the supposed skill of unscientific ancient practitioners. On a fair analysis, we find as factors, besides the skill, a number of other elements, such as cheap raw material, cheap labor, abundant leisure, unlimited patience, immense waste and what would be nowadays a ruinous percentage of rejected products; and, to crown all, a relatively high price obtainable for the final "best-best" product. A man with a blunderbuss may perhaps hit the target oftener than the most accomplished rifleman—if he doesn't count the bullets that miss it. This is particularly true in the production of high grades of tool steel—concerning which it may be added, that direct forge-processes, involving as they do a highly basic cinder, all tend to remove phosphorus. Every American mining engineer knows how often the quality of some deposit of iron ore is praised by rural experts, on the ground that the village blacksmith has made splendid horse-shoe nails out of it. R. W. R.]

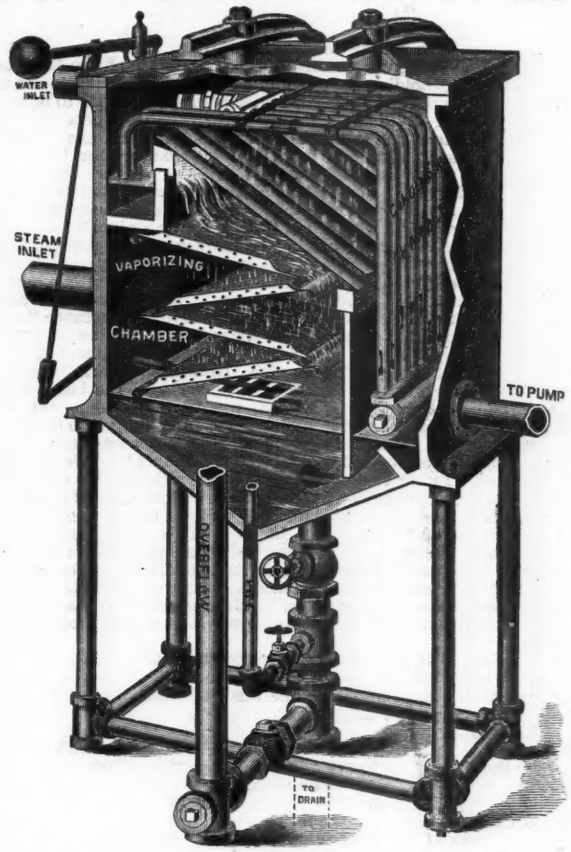
(TO BE CONTINUED.)

**A Submarine Mining Machine.**—This machine has been patented by Mr. John A. Matthews and Hiram T. Scurry, Vancouver, British Columbia, Canada. This invention covers an apparatus embracing a vertically adjustable dredging mechanism worked by steam power in connection with an ore washer and separator, for operation from floats in the beds of rivers having deposits of the precious metals.

## WEBSTER'S "VACUUM" EXHAUST STEAM ECONOMIZER.

Webster's "Vacuum" Exhaust Steam Economizer, manufactured by Messrs. Warren Webster & Co., of Philadelphia, is intended economically to utilize the heat of exhaust steam by returning the water of condensation to the boiler, and may serve either as a feed-water heater and purifier or for obtaining hot and purified water for manufacturing purposes; or, if used in connection with a steam-heating plant, will utilize the exhaust steam for heating buildings without back pressure.

The apparatus consists of a closed iron shell in the form of a rectangular box, with a doubly inclined bottom and provided with an inlet pipe for the exhaust and for the cold water (the supply of the latter being automatically regulated by a float connected with the lever which operates the valve), and an outlet pipe leading to the feed pump, from which the hot and purified water is delivered either to the tank or to the boiler, according to its intended service. The case contains a series of oppositely inclined and perforated sheets of copper, intended to spread the water over an extended surface, and to bring it in contact with the exhaust in the central or vaporizing chamber in a state of such comminution as to effect the prompt condensation of the exhaust. The portion which escapes condensation rises to the upper portion of the chamber, where it comes in contact with the cold water coil, where complete condensation occurs. This coil is formed of a number of parallel pipes bent at right angles, the central group of which is connected with the water inlet. The lower ends of the entire set terminate in a horizontal pipe, and the upper ends of the




WEBSTER "VACUUM" EXHAUST STEAM ECONOMIZER.

discharge pipes are bent again at a right angle, and discharge into a trough, from which the surplus flows over upon the copper condensing plates. The water admitted into the central part of the coil passes down into the horizontal pipe above described, as shown by the arrows, then dividing passes up the group of pipes to the right and left, and is discharged into the trough above, as just described. The feed-water, together with the condensation, having a temperature which may be regulated at will, and which may closely approximate from 210 degrees to 212 degrees, collects in the bottom of the chamber, and is drawn off by the pump through the pipe seen upon the right. A partition extends entirely across the chamber in such a way as to exclude any scum and grease from reaching the pump. By the same apparatus chemical salts and mechanical impurities are precipitated. The arrangement is such that the foreign substances can be drawn off.

**An esteemed correspondent,** in a letter to the ENGINEERING AND MINING JOURNAL from Hongkong, China, gives information in regard to the Jin-ric-sha, additional to that published and illustrated in the ENGINEERING AND MINING JOURNAL, July 5th. He says: "They were invented by an American missionary in Japan, and have been in use in China for sixteen years, being first adopted in Shanghai. They are great favorites in Japan, the City of Tokio alone having 39,000 of them." The vehicle referred to is a two-wheeled covered cart propelled by man-power. Our chief object in describing this machine in our export number was to give American manufacturers information relative to a class of goods having a market in the Orient.

## GOLD WASHING AND DREDGING IN NEW ZEALAND.

Correspondence of the Engineering and Mining Journal.

On the west and south coasts the Middle Island terminates in a series of rocky bluffs, the majority consisting of a conglomerate of metamorphosed schist in blocks varying from a grain of sand up to about a thousand tons. Between these bluffs there are low beaches consisting of the disintegrated bluff; the nearer the bluff the coarser the material, and on the west coast this is intermixed with a quantity of drift wood. The gold is here found in layers of black sand (titanic iron) and inclining from the sea at an angle of 30 degrees, or varying according to the depth of wave that caused the withdrawal of the lighter sand. On some of these beaches there are numbers of men employed; their work is called beach combing, and they are called hatters. A high wind causes the sea to make a high beach of sand and stone, and succeeding tides gradually wash down the lighter particles, leaving the gold or part of it mixed with the heavier sand, such as iron sand and tungstate of lime.

The beach comber comes along with a box about four feet long and two feet wide and an amalgamated copper plate at one end; he also has a water trough 4 × 2 × 2, with handles at one end and a wheelbarrow wheel at the other. He puts his plant on board and perambulates along from patch to patch, and by means of his long-handled shovel (thanks to the American invention of light and handy tools) ascertains the payable ground. He now puts down his locomotive with his box at right angles and the copper plate resting on the edge of the trough. The other end of the box has two legs giving a slope toward the trough of 2 in 12. Another box with two legs holding about 3 cubic feet of sand is put at the upper end, forming a hopper wherein the hatter puts the material to be treated. After this hopper is filled, by lightly lifting the thin deposit, he now takes two kerosene tins, or tins that formerly contained kerosene, and carries from the ocean sufficient water to half fill his trough; then he starts lifting water from the trough and emptying it in the hopper. In its descent it carries with it part of the wash. When the wash is all out of the hopper the tailings are shoveled out of the trough and the operation is repeated. A large part of the gold is thus saved on a plate 2 feet × 2 feet. Men of capital were watching this operation for twenty-five years before they took action to improve on this ancient dredging. Mr. Wellman, representing one firm, and Mr. Broke Smith another, came here from England in '87 and used centrifugal pumps. Mr. Broke Smith used the Ball, London, pump. This was a complete failure; not because the pump did not do its work, but on account of the way in which it was connected. The boiler was a vertical one, 5 feet × 2 feet 4 inches, with twelve 3-inch horizontal tubes, the engine having high and low pressure cylinders, the former 5 inches × 14 inches, and the latter 9 inches × 14 inches. The fan, three bladed, was 20 inches diameter, suction and delivery 7 inches diameter, with suction end enlarged to double area. This was placed in an open pontoon (engineers, please forgive my expression; the proper term should be trough), 10 feet by 30 feet and 3 feet 6 inches deep. Inside this were bolted four uprights, 9 feet high, having a transverse beam projecting 3 feet 6 inches over the side of pontoon. At the end of this was an iron sheave, over which a chain passed, intended to work a Wild's grab weighing 18 cwt. This grab was to lift driftwood or large stones, and to be worked by a steam winch having two cylinders 7 inches by 18 inches, direct acting, oscillating. As will be seen from this correct description, this combination of conglomerate (!) measured from my observation is the greatest insult to engineering that I have seen, and my observation has been extensive. It is needless to say that it failed.

Mr. Wellman's first and second attempts were about on a par with the above, but Mr. Wellman is a mechanic. He set himself to work and improved on the combination which he was sent from England to New Zealand in charge of, and I congratulate him on his success; his perseverance deserves it. He uses the contrifugal pump, does not enlarge the suction end, but places a loose sleeve outside the suction, with an opening between the pipes equal to the area of the suction. This sleeve cannot, however, perform the duty which the inventor believes—namely, that the water enters between the two pipes and in its descent cuts loose the wash at the end of suction. Mr. Wellman has now one of his suction dredges at work at Waipapa, which is doing very good work, and he is carrying out orders for several more. The beaches have usually a lagoon or creek in close proximity to the beach, where the dredge gets water. Where there are no lagoons and no creek water has to be led in by ditches. Bucket and ladder dredges are tried here, but up to date without financial success. We have rapid rivers where bucket and ladder dredges are used successfully, being driven by the current of the river by means of two side wheels, thus requiring no fuel, and only one attendant each shift of eight hours, the current being strong enough to carry away the tailings after they have been loosened.

Where sufficient water is obtainable the hydraulic elevating is used along with ordinary sluicing. The reefs have a short existence, though some of them have given a prodigious yield for a month or two. Where I am at present, Otago Central, the country rock consists of ordinary schist. In many places this schist is decomposed. It has great affinity for water, and in the dryest of seasons is always wet. When thus decomposed it has a white appearance, and gold can be found in any part of it; but the gold is too fine to be saved by any known water process. In some of these decomposed patches there are found small veins where it appears to me that water has been percolating, and this water has been charged with sulphate of iron, and wherever this appears the gold has apparently been concentrated or crystallized, because here and there only can we find particles of gold that are visible to the unaided eye. The gold is of a dark brown color.

On some of the ridges gold is found in the schist. This occurs where there is a fissure transverse to the lamination. Close to the fissure the rock has the appearance of quartz, but further away from the fissure this gradually changes into rock without any break; the gold also gradually diminishes. I am at present engaged sinking at the foot of a hill called Tiger Hill. There is alluvial gravel. The great drawback has been quicksand, and many shafts have been commenced and lost in this sand, which is a sea deposit lying in regular layers at different angles in nearly every shaft. The average is 50 degrees from the horizontal. In one of the shafts I had two layers of this drift, one from 119 to 135 feet, and another from 186 to 217 ft. The sand is exceedingly fine, and where it comes in contact with the timbering all seams must be calked. I penetrated this drift by means of wrought iron cylinders made of 2 feet × ⅜-inch plates with 3-inch angle iron riveted round, and boltholes for fastening together. When a section two feet high was thus screwed together at the bottom of the shaft, another was lowered plate by plate and screwed on top of the already completed section. The difficulty was not to force it down but to keep it up, and this was done by means of iron straps fastened high up in the shaft. The shaft was thus completed without removing the sand until the clay below was reached, when the sand was removed and ordinary sinking proceeded with.

## A SURGICAL MULTUM IN PARVO.

One of the most compact yet manifold contrivances ever devised for first aid to the injured in any emergency is Seabury's Accident Case, manufactured and sold by Messrs. Seabury & Johnson, proprietors of the Seabury Pharmacal Laboratories, Platt street, New York. This is a tin case, about 8½ × 5½ × 4½ inches, packed inside and outside with a large assortment of surgical appliances and information and instructions how to use them. It is in truth a *multum in parvo*. With this case, and by a close adherence to the printed instructions, the more serious dangers arising from accidents while the arrival of medical aid is awaited are reduced to a minimum. There is everything required for almost every emergency, including a small case of surgical instruments, every kind of bandage, antiseptics, lints, etc., and, not least, a little book on "First Aid to the Injured," full of useful hints.

SEABURY & JOHNSON'S SURGICAL CASE.

Printed all around the case are directions prepared by a physician in such a way that an inexperienced person of ordinary intelligence will know exactly what to do before the physician arrives. Even the bottom of the case is utilized, having printed on it a complete list of poisons and the antidote for each. Some such contrivance as this of Messrs. Seabury & Johnson's should form part of the equipment of every miner, engineer, traveler, or others whose business is more or less hazardous and removes them to considerable distances from medical attendance, and should be found in every mill, manufactory, machine shop or building where machinery is used or those working therein are liable to meet with accidents.

## GEMS AND PRECIOUS STONES.

*Revista Minera, Metalurgica y de Ingenieria*, of Madrid, Spain, in a recent issue says:

"Mr. Kunz's book, which is a description of the precious stones and gems of the United States, published by the Scientific Publishing Company, is a magnificent work, pre-eminent by the elegance and good taste of its typography and binding, and especially by the colored plates, which are a veritable triumph of art. The difficulty of reproducing in color precious stones is a great one, for the attempt must be made to show the sparkle of the stones.

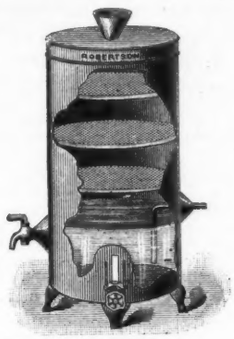
"The author is a gem expert for Messrs. Tiffany & Co. It is therefore needless to say that the text corresponds to the artistic mechanical work of the volume, which is unique on account of its exhaustiveness. Besides its eight colored plates, the book has also a great number of engravings of lesser importance, albeit very interesting, notably the illustration of the natural bridge formed by a silicified tree in Chalcedony Park, Arizona, and the views of other fossil trees in the same park. It will be remembered that samples of this wood agate excited marked attention in the United States section of the Paris Exposition last year.

"Altogether the book is one which deserves a place in the libraries of scholars, as well as in the book cases of people of refined tastes."

**Device to Prevent Derailing.**—In the Veltheim adit on the Gerhard mining property in Germany the chain cars have to pass a great many sharp curves. To prevent the chain from slipping off the car, without going to the expense of hiring extra help, the management placed the inner rail 100 millimeters higher than the outer rail and employed also forcing rails to prevent the car from being derailed. According to *Zeitschrift fuer das Berg- Huetten- und Salinenwesen*, this improvement was entirely satisfactory. The average speed is 1·5 meters per second; the tension of the chain in the curve is 640 and 370 kilogrammes, according as charged or empty.

## HOW TO ECONOMIZE LUBRICATING OIL.

Several processes have been devised by which the waste of oil used about the various parts of machinery may be economized. Where there is much machinery in use the item of lubricants figures largely in the expenditure. Of late years the old practice of turning the contents of the drip trays and receptacles into the sewer has been abolished, and one improvement after another has resulted in the saving of from 10 to 60 per cent. of the oil formerly wasted. The latest of these contrivances, just patented by Mr. Robertson, of the firm of Hine & Robertson, 45 Cortlandt street, New York, is in the form of a filter, for which it is claimed that every drop of oil which escapes from the machinery is saved.




ROBERTSON'S OIL FILTER.

Economy in the matter of oil has now been carried so far that even the greasy dirt on the waste and rags with which machinery is cleaned and polished is recovered. The waste is placed in a vessel, steam turned on it and the grease and dirt carried down, leaving the waste clear for further use. The oleaginous residue is placed in the filter and the lubricant recovered as pure as before use. It is pretty well admitted that lubricating and machinery oil lose but a trifle of their lubricating qualities in passing through the cylinders; consequently, that portion passing out with the exhaust and what is collected from the drip pans, can be used over again. In the Robertson process the oil and water and dirt, as collected, enter at the top, pass first through a finely-perforated tray, depositing all large sediment, and then through two filtering cloths. The syphon carries off the water automatically, the oil being drawn off through the cock as often as the accumulation indicated in the gauge-glass may require. The lid and filtering trays are loose and easy to clean.

**Gigantic Pendulum.**--M. Mascart, member of l'Acadêmie des Sciences, has suspended a huge pendulum on the Eiffel tower. It consists of a bronze wire 115 meters long attached to the center of the second platform and extending down to two meters from the ground. The steel ball suspended by this wire weighs 96 kg.

**Wiebe's Quicksilver Pyrometer.**—Thermometers made of Jena glass can be made serviceable for measuring temperatures as high as 450 degrees C, according to *Zeitschrift fur Instrumentenkunde*, if the tube above the mercury is filled with nitrogen, so that the quicksilver at increasing heat is under a steadily increasing pressure.

**The Telegraph in China.**—China possesses to-day, according to a contemporary, no less than 16,488 English miles of telegraph wires, and the system is being constantly extended. At present the government is laying a line for more than a thousand miles west to Kansuh, in order that it may be kept fully informed of Russian movements in the northwest. Various small extensions are also in progress.

**Gold Coins.**—The largest gold coin now in circulation is said to be the gold ingot, or "loof," of Anam, a French colony in Eastern Asia. It is a flat, round gold piece, and on it is written, in Indian ink, its value, which is about £65. The next sized coin to this valuable but extremely awkward one is the "obang" of Japan, which is worth about £10; and next comes the "benda" of Ashantee, which represents a value of about £9. The Californian fifty-dollar gold piece is worth about the same as the "benda." The heaviest silver coin in the world also belongs to Anam, where the silver ingot is worth about £3; then comes the Chinese "tael," and then the Austrian double thaler.

**Cast-Iron Bricks.**—A mechanic of Erfurt, Germany, has patented a hollow cast-iron brick, the shell of which is about an eighth of an inch thick. No mortar is used in wall construction, for the bricks have grooves and protecting ribs which fit each into the other, thus making a complete union. In the upper side of each brick are two circular openings, and on the lower are two corresponding projections which fit into the circles One of these projections is made hook-shaped for the greater security of its hold. Technical European journals state that these bricks can be put together and taken apart without any injury to them, and that they make a solid and handsome wall.

**Magnetism of Nickel Alloys.**--Dr. J. Hopkinson has been making experiments on the iron nickel alloys. He finds that a nickel steel containing a little less than five per cent. of the nickel is decidedly more magnetizable than wrought iron, particularly for high inductions. On the contrary, with 24·5 per cent. of nickel the alloy is non-magnetic at ordinary temperatures; but after being exposed to a very low temperature it becomes slightly magnetic, and remains so up to more than 500 degrees C. With 73 per cent. of nickel, however, an alloy is obtained that is much more magnetic than the preceding or than a mechanical mixture of iron and nickel in the same proportions. In the specimen of nickel steel first mentioned there were two well-marked "critical points" at temperatures about 150 degrees apart, and all magnetic properties vanished on heating to the higher point, to reappear, on cooling, only at the lower one. All these facts point to some eccentric sort of chemical combination. The non-magnetic alloy contained very nearly three molecules of iron to one of nickel; but the cause of the phenomena observed is by no means as simple as this might indicate, since a small proportion of nickel increases the magnetic properties of the material.

## PATENTS GRANTED BY THE UNITED STATES PATENT OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent Office:

TUESDAY, OCTOBER 28th, 1890.

439,102. Electric Motor. Charles S. Bradley, Yonkers, N. Y.
439,105. Steam Boiler. John A. Caldwell, Bay Ridge, N. Y.
439,110. Mechanism for Transmitting Power. Elswood Chaffey, Santa Monica, Cal.
439,123. Shaft Lubricator. Edward Dawson, Terre Haute, Ind.
439,131. Steam Generating Grate Bar. William H. Farris, Detroit, Mich.
439,132. Apparatus for Evaporating and Condensing Water. Henry Ferguson, London, England.
439,140. Clutch Pulley. James C. Gibson, San Francisco, Cal.
439,151. Dry Battery. Wilhelm L. F. Hellesen, Copenhagen, Denmark.
439,152. Motor. Franz J. Laun, Villigen, Germany.
439,165. Device for the Development of Water Power. Madison Maginn, Chicago, Ill.
439,173, Process of and Apparatus for the Separation of Finely Divided Mineral or Metallic Matter from the Liquids in which they are Suspended. James C. Newbery, Melbourne, Victoria, and Claude T. J. Vautin, London, England.
439,182. Trolley Pole. Louis Pfingst, Mass.
439,192. Trolley Pole for Electric Cars. Benton C. Rowell and Francis E. Galloupe, Boston, Mass.
439,213. Electric Magnetic Clutch. Curtis H. Veeder, Lynn, Mass., Assignor to the Thomson-Houston Electric Company, of Connecticut.
439,229. Furnace and Grate. Joseph Wodell, New York, N. Y., Assignor to the Boynton Furnace Company, same place.
439,232. Ignitor for Gas Engines. Cyrus W. Baldwin, Yonkers, N. Y.
439,257. Machine for Manufacturing the Nuts of Tire Bolts. John R. Stunkard, Brazil, Assignor to Timothy L. Bosart, Indianapolis, Ind.
439,259. Means and Apparatus for Utilizing Waste Heat for Producing Motive Power. Charles Tellier, Paris, France.
439,261. Steam Boiler. Arthur C. Walworth, Newton, Mass., and Carleton W. Nason, New York, N. Y.
439,264. Crane. Henry Aiken, Homestead, Pa.
439,275. Rock Drill. Robert D. Hobart, Denver, and Michael Ahearn, Leadville, Colo.
439,282. Machine Belting. George F. Page, Concord, N. H.
439,283. Anti-Friction Bearing. Thomas Tripp, Avon, Assignor to the Tripp Manufacturing Company, Boston, Mass.
439,302. Means for Regulating the Elasticity of Car Springs and Means for Storing Air. Hugh M. Minton, St Louis, Mo.
439,307. Vapor Burner. Adolphe Seigle-Goujon, Lyons, France.
439,308. Automatic Wire Finder for Trolley Heads. George S. Slocum, Newport, R. I.
439,316. Power Transmitting Device. Samuel K. White, Chicago, Ill.
439,330. Process of and Apparatus for Decomposing Bicarbonate of Soda. Leonard A. Staub, Winnington, England.
439,351. Mechanism for Operating Gates of Turbines. William O. Harris, Lawrence, Mass.
439,356. Injector. William B. Mack, East Boston, Mass.
439,374. Ore Crusher. Theodore A. Blake, New Haven, Conn.
439,393. Carbonizing Chamber. Thomas A. Edison, Menlo Park, N. J., Assignor to the Edison Electric Light Co pany, New York, N. Y.
439,430. Sand Molding Machine. Theodore Scherf, Elizabeth, N. J.
439,472. Means for Reversing Steam Valves. Charles E. Brown, Rome, N. Y., Assignor of one-half to James Stevens, same place.
439,476. Car Coupling. Justin E. Clark, Andover, Mass.
439,480. Valve Mechanism for Double-Acting Pumps. Leopold Dahlstrom, Santa Clara, Cal., Assignor of one-half to Robert Menzel, same place.
439,483. Traveling Crane. Charles Davy, Sheffield, England.
439,484. Automatic Steam Boiler Feeder. Bernard Devlin, Jersey City, N. J.
439,487. Apparatus for Removing Piles of Coal. James M. Dodge, Philadelphia, Pa., Assignor to the Dodge Coal Storage Company, Naugatuck, Conn.
439,496. Boiler Flue Beader. Benjamin B. Farris, Rocky Ford, Ga.
439,499. Exhaust Nozzle. Jacob Fulmer, Asheville, N. C.
439,501. Mold for Casting Pipes and Cylinders. John Graham, Jr., and Erwin Graves, Camden, N. J.
439,513. Speed Governor. Joshua Hoyle and John Harrison, Oldham, England.
439,529. Brake for Hoisting Machines. Anton Larsen, New York, N. Y.
439,579. Compound Pumping Engine. John N. Floyd and David H. Morton, Handsworth, Assignor to Tangyes, Limited, Soho, England.
439,583. Method of Splicing Ropes and Cables. Sullivan W. Verrill, Chicago, Ill., Assignor of two-thirds to William H. Preble, same place, and Andrew B. Spurling, Elgin, Ill.
439,588. Revolving Water Purifier. Easton Devonshire, London, England, Assignor to the Revolving Purifier Company, Limited, same place.
439,592. Reversing Gear for Steam Engines. Daniel A. Frazer, Mancelona, Mich.
439,595. Draft Regulator. Charles D. Howard, Syracuse, N. Y., Assignor to the Howard Furnace Company, same place.
439,596. Roller Mill. Frederick W. Howell, Buffalo, N. Y., Assignor to Margare t T Howell, same place.

## DIVIDENDS PAID BY MINING COMPANIES DURING OCTOBER AND SINCE JANUARY 1ST, 1890.

| Name of Company. | Paid in Oct. | Paid since Jan. 1st. | Name of Company. | Paid in Oct. | Paid since Jan. 1st. |
|---|---|---|---|---|---|
| Alice, Mont | ..... | $75,000 | Homestake, Dak | $12,500 | 125,000 |
| Amador, Cal | ..... | 31,250 | Horn Silver, Utah | ..... | 100,000 |
| Atlantic, Mich | ..... | 100,000 | Idaho, Colo | ..... | 49,000 |
| Aspen, Colo | 20,000 | 160,000 | Iron Mountain, Mont | ..... | 25,000 |
| Badger, Ontario | ..... | 37,500 | Jay Gould | ..... | 22,000 |
| Bangkok - Cora Belle, Colo | ..... | 6,000 | Kearsarge, Mich | ..... | 100,000 |
| Bimetallic, Mont | 50,000 | 200,000 | Little Chief, Colo | ..... | 10,000 |
| Boston & Mont., Mont | ..... | 550,000 | Little Rule, Colo | 10,000 | 80,000 |
| Caledonia, Dak | 8,000 | 56,000 | Mammoth, Utah | 40,000 | 400,000 |
| Calliope, Colo | 5,000 | 75,000 | Matchless, Colo | ..... | 2,500 |
| Calumet & Hecla, Mich | ..... | 1,500,000 | May Mazeppa, Colo | 10,000 | 50,000 |
| Candelaria Con., Mex | ..... | 60,000 | Metropolitan, Mich | ..... | 250,000 |
| Centennial-Eureka, Utah | ..... | 45,000 | Monitor, Dak | 7,500 | 7,500 |
| Central, Mich | ..... | 20,000 | Montana Ltd., Mont | 39,600 | 178,200 |
| Champion, Cal | ..... | 20,000 | Napa, Cal | 10,000 | 50,000 |
| Cœur d'Alene, Mich | ..... | 60,000 | New Guston, Colo | ..... | 50,000 |
| Cortez, Nev | ..... | 60,000 | Ontario, Utah | 75,000 | 750,000 |
| Cons. Cal. & Va., Nev | ..... | 162,000 | Oro, Colo | ..... | 95,000 |
| Cumberland, Mont | ..... | 15,000 | Osceola, Mich | ..... | 150,000 |
| Daly, Utah | 37,000 | $75,000 | Parrot, Mont | 18,000 | 90,000 |
| Derbec Blue Gravel, Cal | 10,000 | 30,000 | Poorman, Colo | ..... | 2,000 |
| Don Enrique, Mex | ..... | 3,000 | Puzzler, Col | ..... | 5,000 |
| Elkhorn, Mont | ..... | 50,000 | Quicksilver Pref., Cal | ..... | 123,109 |
| Eureka Con | 12,500 | 37,500 | Quincy, Mich | ..... | 320,000 |
| Franklin, Mich | ..... | 80,000 | Reed & National, Colo | 5,000 | 30,000 |
| Granite Mountain, Mont | 200,000 | 2,200,000 | Republic, Mich | ..... | 100,000 |
| Hecla Cons., Mont | ..... | 30,000 | Silver Mg. of L. V., N. M | 25,000 | 200,000 |
| Helena & Frisco, Mont | ..... | $70,000 | Small Hopes, Colo | 25 000 | 25,000 |
| | | | Tamarack, Mich | 200,000 | 590,000 |
| | | | United Verde, Ariz | ..... | 30,000 |

## PERSONAL.

The American Society of Mechanical Engineers will hold a meeting at Richmond, Va., from the 11th to 14th inst.

Messrs. H. & E. Collins & Co., agents for the Magnetic Ore Separator Company, have moved from the Lewis Block, Pittsburg, Pa., to more commodious quarters in the new Bank of Commerce Building.

Mr. Alex. Agassiz, Col. Livermore and Mr. E. D. Leavitt, Jr., the president, vice president and consulting engineer, respectively, of the Calumet & Hecla Mining Company, are paying a visit to the mine at Calumet, Mich.

Mr. Wm. L. E. Mahon, the well-known mechanical engineer, has entered the service of the Marinette Iron Works Company, West Duluth, Minn. He is to have charge of the company's engineering, design and construction departments.

Mr. F. H. Strong, M. E., of Dolores, Santa Fé County, N. Mex., who has recently reported on some new Colorado mines for parties in New York, is now in this city for a few days. He has achieved a reputation as a mathematician and lightning calculator.

Capt. John Daniell, superintendent of the Tamarack, Osceola and Kearsarge mines, Houghton county, Mich., and Supt. Thomas Couch, of the Boston and Montana Consolidated Copper and Silver Mining Company, of Butte, Mont., is said to have gone to Oregon to inspect a copper deposit.

Norris Watts, son of Mr. E. H. Watts, of London, England, a member of a syndicate building iron and steel plants in Middleborough, Kentucky, according to a press dispatch, was shot and fatally wounded, on the 29th ult., while hunting near Cumberland Gap, Tennessee, by an unknown party.

With characteristic Western enterprise the California Museum Association (through Mr. J. A. Woodson, its president, who is also editor of the Sacramento, Cal., *Record-Union*) offers two prizes of $250 each to those students of physics who will solve two scientific puzzles. The first is for an invention to utilize the rise and fall of tides for at least three horse power for six hours, and the second for an inexpensive device to denote the hygienic condition of the atmosphere in a room. The inventors are to retain all rights in the inventions.

## OBITUARY.

L. L. Lolb, a leading capitalist and banker, died at Erie, Pa., on the 28th ult., aged 80 years. He was one of the pioneers in the Northern oil operations, and was a part owner in the famous Noble well at Louisville.

William Holliday, who, in 1861, took charge of the manufacture of heavy guns for the government at the South Boston Iron Works, and who continued the work for 21 years, died on the 26th ult., in Boston, Mass., aged 58.

## ITEMS FOR EXPORTERS.

At Tampico, Mex., there are openings for ice factories, telephones, water and electric light plants.

The President of the Republic of Venezuela has recently ordained that coal shall be admitted free of duty.

Siberia is now a customer of America. The Hawley Hardware Company, of New York, has recently received an order by telegraph for a large consignment of hatchets and other articles of hardware, which were sold for Siberian Russia.

Minister Ryan, writing from the City of Mexico, announces that the Mexican Republic has decided to adopt the recommendation of the International American Conference in regard to a uniform system of weights and measures. The metric will shortly be the only system of weights and measures used in Mexico.

United States Consul Henry Gillman, at Jerusalem, has informed the State Department that three locomotives of American make have arrived at Jaffa for the Jerusalem & Jaffa Railway. "It is of interest to our citizens, and, indeed, the entire world," says Mr. Gillman, "to know that the first locomotive ever used in this ancient land was made in the new world—in the United States of America."

There would seem to be plenty of opportunity in Cuba for American enterprise and capital. We understand that just now, about Guantanamo, where there is evidenced more enterprise than in the older sugar-raising districts, there is scope for a good deal more improvement. Not a single property there makes use of double grinding, nor are there any furnaces for burning green bagasse. There are no chemists in the neighborhood and little if any attention is paid to the scientific part of sugar-making.

A correspondent advises us that Americans will find a good market in West Australia for the following articles: Kerosene oil, 125 per cent.; turpentine resin, granulated and cut loaf sugar, dried apples, tinned fruits, tinned oysters, lobsters, salmon, brooms, broom handles, clothes pins, axe handles, lumber (doors), sausage machines and mincers, carpenter's edge tools, school slates and pencils, chairs (low to medium), household furniture (suites, low to medium), boot and harness leathers, buggies and carriages (two and four-wheel).

That the English are not always best pleased with the English is again proved by a statement made at a meeting of the shareholders of the Central Uruguay Railway Company held in London. The company is now managed by a London directorate, the chairman of which, Mr. G. W. Drabble, read the following statement: "The year's revenue has borne a much larger debit from the steel rail and sleeper renewals, which have been pushed forward vigorously; coal and freights have been dearer; the locomotive charges have been heavily burdened by night repairing work, at double cost, to keep us going, and this has been chiefly the result of delay on the part of English manufacturers in delivering locomotives long overdue."

The *South American Journal* (London) publishes a diagram and explanatory reading matter, suggesting an entirely new route from London to Valparaiso, which, though it may appear a little impracticable at first through topographical obstacles, may easily become an accomplished fact if it gains popular favor, and is backed by ample capital. The suggestion is likely to attract attention just now because it embraces the proposed railway across the desert of Sahara from Algiers to Senegal. The proposed route, and the distances are: London to Paris, 288 miles; Paris to Marseilles, 536 miles; Marseilles to Algiers, 320 miles; Algiers to Senegal, 2,050 miles; Senegal to Pernambuco (the only ocean mileage), 2,000 miles; thence southwest across the South American continent to about half way between Valparaiso and Buenos Ayres, instead of direct to Valparaiso. This bend would make the distance to the two Southern capitals about the same, that is, 3,550 miles from Perambuco, by a branch line to Buenos Ayres. The advantages of such a route are manifest. Three of the chief points of South America would be tapped for French, Italian, German and English commerce. With only about 3,340 miles of ocean voyage, out of a total of 8,744 miles, Valparaiso will be many days nearer European markets than at present.

## INDUSTRIAL NOTES.

It is said that Messrs. Cartwright, McCurdy & Co. are to construct at a cost of $50,000, a puddle mill adjacent to their Enterprise Iron Works plant, Youngstown, O.

The puddling department in the Wayne Iron Works, Pittsburg, Pa., is soon to be closed for a month in order to allow the substitution of a new set of three-high muck rolls for the old two-high train.

The Canton Iron Company has recently been incorporated by Chattanooga parties for the purpose of building iron furnaces, developing mineral lands, etc. A furnace will be erected at once at Canton, Ga.

Isabella furnace No. 1, Pittsburg, Pa., was blown out last week, having cast without interruption on one lining since August 1st, 1888, or about 800 days blast. At 200 tons a day the tonnage would be 160,000 tons. No. 2, which has been in blast since May 26, 1886, continues to cast every day 200 tons.

The Toronto Rolling Mill and Forging Company, of Toronto, Can., it is said, has been incorporated, with a capital stock of $200,000, and will erect works at West Toronto Junction. It will absorb the plant and business of the Toronto Drop Forge Company, whose works have heretofore been in Toronto.

A press dispatch states that, in a trial at the Danish ordnance firing grounds at Amager, an island near Copenhagen, a Schneider steel plate proved superior to a Cammell compound plate, thus confirming the results of the recent tests at Annapolis. It is stated that the Schneider plate did not contain the nickel alloy.

A press dispatch from Pittsburg, Pa., says that Carnegie, Phipps & Co. will erect the largest beam mill in the world. The beam mill in operation at the Homestead mills is now rolling 24-inch beams, and larger shapes have been in request. The 36-inch mill will be by several inches the largest of the kind in the world.

The Illinois Steel Company, of Chicago, Ill., some time ago entered into an arrangement with its men on a profit-sharing basis, and three months later divided about $4,000 among its men as premiums for faithful and efficient service. Another quarter has now passed, and another $4,000 is about to be distributed as a result of this arrangement.

W. J. Clark & Company, of Salem, Ohio, are out with a new pinch bar, or car mover, which is so contrived as to obviate most of the disadvantages of other car movers. It is a great improvement for mining regions. A clevis-shaped piece over the track is held in place by a steel bar, which acts as a fulcrum. One of the advantages claimed for the "Victor" is that it moves the car instead of lifting the wheel from the rail.

It is said that the Michigan Central is considering plans for a tunnel under the Detroit River from Windsor, Ont., to its yard at Ninth street, Detroit. The width of the river is 2,500 feet, and the length of the tunnel, with approaches, would be 6,500 feet. It is roughly estimated that a tunnel large enough to accommodate one track would cost $3,000,000 and two tracks $5,000,000. A firm of New York engineers is preparing an estimate of the cost of the work.

The Etna mill, of Spang, Chalfant & Co., Pittsburgh, Pa., has obtained a new supply of gas from several new wells in a territory which is some distance from their old gas field. The puddling department, in which half the furnaces were idle all summer, is now all lighted up, and one of the two batteries of boilers which had to be changed to coal burners has been rechanged to a gas burner. It is said that the men have been asked to work until midnight on Saturdays, in order to catch up on orders.

We have received from Messrs. Merchant & Co., the manufacturers of the Star Ventilator, Merchant's Roofing, etc., of New York, Philadelphia, Chicago and London, a unique and handy rule for scientific or office use. It is printed on celluloid, and while as pliant as paper it is as durable as leather. On it is printed the foot divided into inches, and the inches into 80ths, 40ths, 32ds, 16ths, 8ths and quarters, so arranged that reduced drawings can be measured to scale in a moment.

The Engineer to the Mersey Docks & Harbor Board (Mr. G. F. Lyster), reports that the dredging operations at the Mersey Bar, Liverpool, have been remarkably successful. The apparatus has been at work altogether about one month, allowing for interruptions caused by severe weather and the equinoctial gales, and during that period about 20,000 tons of sand has been removed to the place of deposit about two miles distant towards Crosby. This hopper steamer and its sand-pumping apparatus were constructed by Messrs. William Simons & Co., Renfrew, England, the latter being a patent of this firm.

The New York Camera Club, of 314 Fifth avenue, New York, will, on Monday next, open an exhibition of the works of the various establishments in the country producing all kinds of photogravure, photo-engraving, photo-lithography and other mechanical photographical methods. Here will be collected for the first time all the best specimens of the new art which has revolutionized pictorial illustration, and made it possible for the printing press to reproduce, with absolute faithfulness to nature, what has until recently been roughly and hurriedly sketched or "dug out" in wood. Admission to the exhibition will be by card.

We are indebted to the Middlesborough (Ky.) Town Company for a "Souvenir of Middlesborough." We should say that next to witnessing the romantic scenery, glancing at the splendid buildings, examining the resources and industries of this vigorous young town and its surroundings, the possession of this souvenir would be most interesting. It is artistically and typographically beautiful. Each of the scores of page illustrations by photogravure is worthy of a frame. Besides this pictorial feast, there are historical, local, commercial, and other sketches, and a mass of information, supplemented by two maps. Many of the pictures are photographs of mines and miners.

### SOUTHERN INDUSTRIAL NOTES.

(From our Special Correspondent.)

The Winston-Salem Land and Investment Company was organized at Winston, N. C., on the 16th inst., with a capital stock of $250,000. Hon. F. M. Simmons was elected president and W. A. Blair, president of Peoples Bank, the secretary and treasurer; the company is composed of English, northern and home capitalists.

It is said that the Virginia, Tennessee and Carolina Steel and Iron Company, which owns the Pocahontas coal fields in Virginia and the South Atlantic and Ohio railroad, constructed from Bristol, Tenn., to Big Stone Gap, is surveying a line from Bristol to Lineville, N. C., at which point connection will be made with the Seaboard and Wilmington Air-Line. The company owns 50,000 acres of land in Mitchell county, adjoining the lands of the Lineville Improvement Company, which it desires to open up.

The Jasper Town and Land Company, with a capital stock of $1,000,000, has been incorporated by New York and English capitalists; the object is to develop and otherwise improve a tract of land of 20,000 acres of timber and mineral lands in Alabama, locate a town, establish factories, etc.

## MACHINERY AND SUPPLIES WANTED AT HOME AND ABROAD.

**If any one wanting Machinery or Supplies of any kind will notify the "Engineering and Mining Journal" of what he needs, his "Want" will be published in this column.**

**Any manufacturer or dealer wishing to communicate with the parties whose wants are given in this column can obtain their addresses from this office.**

**No charge will be made for these services.**

**We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning American goods of any kind, and forward them catalogues and discounts of manufacturers in each line, thus enabling the purchaser to select the most suitable articles before ordering.**

**These services are rendered gratuitously in the interest of the subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.**

### GOODS WANTED AT HOME.

**1,120.** A 60 H. P. steel boiler; quote lowest cash price. Texas.

**1,121.** A mill for grinding the tailings of concentrates after chlorination—for the manufacture of pigment for paint. California.

**1,122.** A 25-light incandescent dynamo. Virginia.

**1,123.** Machinery for making bricks. Virginia.

**1,124.** A full line of saw mill machinery. Texas.

**1,125.** A good resaw. Georgia.

**1,126.** A 50 H. P. engine and a 60 H. P. boiler. Tennessee.

**1,127.** Two 100 H. P. Corliss engines to work singly or together. Virginia.

**1,128.** A roller flour mill of from 50 to 100 barrels capacity daily; also engine and boiler. Virginia.

**1,129.** Well boring machinery. Kentucky.

**1,130.** Shingle mill, bolter and several crosscut saws. Alabama.

**1,131.** Complete outfit for a laundry; 6 H. P. automatic engine, with 10 or 12 H. P. boiler; wood burner preferred. Florida.

**1,132.** Necessary machinery to double capacity of water-works in North Carolina.

**1,133.** An automatic emery wheel for grinding plane knives, a mortising machine, tenoning machine, self-feed rip saw and a self-feed hand edger. Arkansas.

**1,134.** A 24-inch lathe, 10-foot swing and a drill press. West Virginia.

**1,135.** A pump, driven directly by water power, that can be used advantageously to pump to a slight elevation the sewage of a town that has an abundant water supply under high pressure. Rhode Island.

**1,136.** A simple retort to make charcoal; capacity about 1½ cords of wood. Florida.

**1,137.** Second-hand power bending rolls, 72 to 76 inches between housings, to bend three-eighths inch steel plates, full width. South Carolina.

**1,138** A pair of Cornish crushing rolls, new or second-hand. Illinois.

**1139.** Steel tubing ranging in sizes from six to 12 inches in diameter. New York.

**1,140.** Machinery for making iron kegs Pennsylvania.

### AMERICAN GOODS WANTED ABROAD.

**1,119.** Samples and prices of fencing wire; several car loads will probably be wanted. Mexico.

## GENERAL MINING NEWS.

The executive board of the United Mine Workers concluded its session at Columbus, O., last week. The most important action taken was in reference to securing higher wages for miners in districts where they are below the standard. It was decided to send members of the board into the various districts with this purpose in view. A resolution was adopted favoring the extension of the law in effect in the anthracite coal regions of Pennsylvania, requiring miners to hold certificates of competency to other States.

Shipments of iron ore from the mines of the districts mentioned below for the season up to and including October 22d were as follows:

| | | | Tons. 1890. | Tons. 1889. |
|---|---|---|---|---|
| Marquette, | Marquette | District | 1,206,521 | 1,295,468 |
| St. Ignace, | " | " | 15,911 | 45,556 |
| Gladstone, | Marquette | District | 6,183 | 16,901 |
| " | Menominee | " | 62,018 | 42,661 |
| Escanaba, | Marquette | " | 1,124,000 | 896,339 |
| " | Menominee | " | 1,769,712 | 1,491,713 |
| " | Gogebic | " | 257,830 | 259,995 |
| Ashland, | " | " | 1,939,418 | 1,427,796 |
| Two Harbors' Vermillion District | | | *800,861 | 758,880 |
| Total, tons | | | 7,182,454 | 6,235,308 |

*Up to Oct. 24th.

### ALABAMA.

#### CALHOUN COUNTY.

(From our Special Correspondent.)

WOODSTOCK IRON COMPANY.—A recent legal case has attracted much attention: A suit was begun some time ago in the Supreme Court of New York by J. H. Clews against the Woodstock Iron Company, of Anniston, Ala. It was brought to recover an alleged interest in certain stock and property of the Oxford Iron Company, a corporation organized under the laws of Alabama, which some years ago was in the hands of Henry Clews, the banker. He transferred his interest to his brother, John H. Clews, who in turn transferred it to Mr. Kenna. The latter sold it to the Woodstock Company. This company, the defendant, improved the property, which the plaintiff found out and then claimed it had been sold under false pretenses, and accordingly brought suit to recover it, which is worth about $1,000,000. The case was carried to the United States Court, and the defendant moved to set aside the summons by which the case had been commenced in the State Court. After considerable legal skirmishing, the motion was allowed, which throws the case out of court. The judge holds that the company is an Alabama corporation, having no offices in the State of New York, and no action could be brought against the defendant in that State.

### CALIFORNIA.

(From our Special Correspondent.)

SAN FRANCISCO, Oct. 25.

#### AMADOR COUNTY.

PLYMOUTH CONSOLIDATED GOLD MINING COMPANY.—Through the courtesy of Mr. H. W. Lazelle, secretary of this company, we are enabled to publish the financial statement to October 1st:

| | |
|---|---|
| Surplus Jan. 1, 1890 | $28,141.42 |
| Gold bullion produced March | 2,969.90 |
| From Utica Mining Co. for use of mill | 542.52 |
| Wood sold | 1,004.00 |
| Gold bullion produced April | 5,055.63 |
| Gold bullion produced May | 6,040.37 |
| Gold bullion produced June | 7,572 05 |
| Gold bullion produced July | 5,649.93 |
| Gold bullion produced August | 6,359. 7 |
| Copper plates melted up | 1,770.95 |
| Gold bullion produced September | 8,591.80 |
| Sulphurets reduced | 6,913.72 |
| Total | $80,611.36 |

| | | | | | |
|---|---|---|---|---|---|
| January expenses | | $3,975.05 | August expenses | | 5,523.90 |
| February | " | 3,762.57 | September | " | 4,971.71 |
| March | " | 4,293.19 | | | |
| April | " | 5,075.63 | | | $47,740.21 |
| May | " | 6,443.17 | | | |
| June | " | 5,961.37 | Surplus | | $32,871.12 |
| July | " | 7,733 65 | | | |

TALISMAN.—Two hundred feet more have to be made in the drift being run to connect with the works at the South Spring Hill. When the connection is made the ventilation will be so improved that operations in working the ore at both ends of the drift will be greatly facilitated.

### COLORADO.

#### GUNNISON COUNTY.

CHRONICLE.—The Pitkin *Miner* says: "We understand that a new lease has been secured on the Chronicle by the present superintendents, Vincent Johnston and others, which calls for $5,000 worth of work. A contract, specifying that the shaft be sunk 50 feet and a drift run 125 feet, has been let. The same is to be executed within 40 days."

#### LAKE COUNTY.

MIKE AND STARR.—The drift which this company is running struck a dyke of grey porphyry 20 feet to the west of the shaft. While this drift was continued as a cross cut through the dyke, a new drift was started from the meeting of the dyke running to the north, along, or rather diagonally across the strike of the dyke. This latter dritt, after attaining a length of about ninety feet to the north, has run out of it, and is now in solid lime. Meanwhile the west drift was carried forward, and at about fifty feet additional driving, also passed through the dyke into the same limestone. It has now been turned to the north. The older workings show that a corresponding dyke was running through the property to the east. Between those dykes it is expected to find ore. It is already beginning to show in the drifts, the limestone when first met with being quite hard and compact, with absolutely no minerlization, whereas as the drift is continued it becomes much more soft, and ore in bunches is beginning to come in.

#### LARIMER COUNTY.

BONANZA KING GOLD MINING COMPANY.—This company has purchased a mill, which it will erect upon its property in Manhattan immediately. Arrangements are now being made for locating the mill site and putting a force of men to work erecting the necessary buildings. A force of men will also be put at work on the mine sinking, drifting and taking out ore. It is understood that the company intends to work its mines to their fullest capacity. For additional matter descriptive of this property see ENGINEERING AND MINING JOURNAL, issue of April 5, 1890.

#### PITKIN COUNTY.

ASPEN MINING AND SMELTING COMPANY.—Shipments were resumed by this company on Wednesday last. This means the resumption of work with a full force. During the time that the miners have been laid off prospecting has continued and more territory opened up. The delay has not been so great a loss as might have been supposed.

CASTLE CREEK POWER AND TUNNEL COMPANY.—The flume of this company has been completed and work commenced on the power house at the tunnel entrance. The flume will carry water, which, with the head available, will develop 1,800 horse power. For matter descriptive of the operations of this company see ENGINEERING AND MINING JOURNAL, issue of June 28th, 1890.

HIDDEN TREASURE.—This is one of the mines of Aspen mountain which lies east of the regular blue lime contact. Though it is off the main belt, it has rich ore. The property, it is said, is in the line with the Copper King, Princess Louise and other claims in Spar Gulch. But while the former mines are on the quartzite contact, the Hidden Treasure is a fissure in the dolomite lime. The quartzite follows the draw up East Spar Gulch, and the Hidden Treasure is located on the divide. The vein stands almost perpendicular. It crops out on the surface and is followed in by a tunnel for about two hundred feet. It is never more than a foot in width, but the ore is rich. The mill returns will average 300 ounces, and picked specimens from the mine ran up into the thousands. Five tons of this ore a week are shipped to the samplers and very handsome dividends are realized. From the face of the tunnel a shaft is sunk fifty feet, then a drift is run off seventy-five feet, all on the vein. The miners are now taking oreout of a winze near the face of the drift. The mineral is found in bunches. At one time there will be no ore in sight and the next shot will open out a good pocket. The mine is leased to Wilson & Stimson, J. B. Warner and Mr. Woods, of Colorado Springs. They have another year in which to work the property.

SUNRISE.—This is the name of a group of claims on Tellurium, owned by L. H. Worthington. Work of development was commenced last August. The tunnel is now in 109 feet. It is expected that the vein will be cut under the old workings, about 300 feet in. Already there has been found stringers of mineral in the porphyry, which apparently are spurs from the main vein. The miners are running almost parallel with the vein and will not cross-cut to it until they get under the old shaft. This will be at a point 50 feet deeper. The hill rises rapidly from that on, and they will gain great depth as the tunnel progresses. The vein is a true fissure.

### GEORGIA.

#### POLK COUNTY.

(From our Special Correspondent.)

AUGUSTA MINING COMPANY.—It is said that the company has purchased the different properties of the Georgia & Alabama Consolidated Mining Company for $300,000, and that the new owner proposes the immediate development of the mines and the erection of new machinery.

### IDAHO.

#### BOISE COUNTY.

Press dispatches report the discovery of coal on Schaffer Creek, near Horseshoe Bend, twenty-five miles from Boise City, in sufficient quantities to warrant the making of contracts for its delivery at convenient points.

### ILLINOIS.

#### SANGAMON COUNTY.

A brief press report says that unless the coal miners in this county receive an advance in wages by Saturday, the 1st inst., they will all strike on the 3d.

### INDIANA.

#### DAVIESS COUNTY.

W. W. Marmaduke, writes us from Washington that he has recently inspected certain iron ore deposits which lie near that city. These deposits were worked in the fifties, and old excavations are numerous. Samples of the ore analyzed with the following result: iron, 55·09; phosphorus; 60: silica, free, 11·66: sulphur, none. The beds are from four to seven feet thick. At the outcrop of this dense matter I think about 70 per cent. is iron ore, while balance is ochre. The ochre was in streaks through the iron. Very little prospecting has been done. There is a chain of hills of hundreds of acres containing this ore. The writer invites inspection and investigation.

### KANSAS.

#### CHEROKEE COUNTY.

A special report shows that during the week ending October 25th, the output of ore from the mining districts of Galena and Empire City was: Rough ore, pounds milled, 2,467,190; zinc ore, pounds sold, 810,000; lead ore, pounds sold, 200,000. Sales aggregated a total value of $15,915, and the total value of the output was $19,135.

### MICHIGAN.

#### COPPER.

ADVENTURE.—A party is now engaged in opening the Knowlton lode in its course across the Adventure property. One pit has been sunk in the vein, which disclosed a good showing of copper. Should the vein show the copper bearing quantities characteristic of it on the Hilton, Mars and Knowlton mining companies' lands, two shafts will be sunk on it by the Adventure Mining Company.

CENTENNIAL MINING COMPANY.—Superintendent Johnson Vivian is quoted as having said that the mine of this company will not begin production

until next summer; a tall head of stamps is to be put into the mill in place of the Cornish heads now in place, and the mill enlarged; that the company has enough money in the treasury to develop the mine so as to begin running the stamp mill on full time by next summer, and there is no need of beginning to make copper any earlier. In fact, it would not be profitable to try to operate the mine before it is more fully developed and proved.

RIDGE.—In two weeks it is expected that this mine will be unwatered. A number of tributers are already at work in the upper levels, where considerable ground has been found. A shaft and engine house is being constructed. In the new mine, the fourth level has been extended south 100 feet. A track will be put in and the ground stayed.

IRON—MARQUETTE RANGE.

The annual report of the mine inspector for this district, shows that during the year, out of 12,000 men employed by the mines, 45 were killed and 5 permanently disabled.

IRON.—MENOMINEE RANGE.

CHAPIN MINING COMPANY.—The walls of the new pump house at "D" or the "Sand Shaft" (see ENGINEERING AND MINING JOURNAL, August 16th, 1890) are about complete. A stone boiler house and an engine house are also well under way. A traveling crane with a 30-ton lifting capacity is being placed in position on the top of the pump house for permanent use. The pump machinery is expected early in the spring.

HAMILTON ORE COMPANY.—The new flat rope hoist for this company's No. 1 shaft is all ready for use. As soon as the shaft is prepared for the change in the hoisting system the plant will be started. The shaft house has been raised to accommodate the new sheaves. In developing this mine no ore was mined except that which was necessary in making the openings. It is conservatively estimated that there is $2,000,000 of ore in sight.

## MISSOURI.

JASPER COUNTY.

(From our Special Correspondent.)

JOPLIN, Oct. 27.

During the past week there was an advance in the price of zinc ore, and the market closed Saturday evening at $25 per ton. The lead market remained strong all week, and closed at $33 per thousand.

Following are the sales from the different camps as far as reported:

Joplin mines, 1,403,000 pounds zinc ore and 161,380 lead, value $22,409.

Webb City mines, 1,318,317 pounds zinc ore and 43,780 lead, value $16,917.

Carterville mines, 846,160 pounds zinc ore and 104,330 lead, value $13,975.

Zincite mines, 263,010 pounds zinc ore and 4,800 lead, value $3,273.

Lehigh mines, 42,460 pounds zinc ore, value $567.

Oronogo mines, 49,020 pounds zinc ore and 10,760 pounds lead, value $907.

Galena, Kan., mines, 890,170 pounds zinc ore and 165,580 lead, value $18,671.

All districts, total value, $76,719.

According to a dispatch, the output of the Aurora mines for the week was 86,000 pounds zinc ore, 559,000 silicate and 315,000 lead, the value being $11,755. This would increase the total value to $88,474.

Oswego Land turned in 60,000 pounds lead last week. The Bay State mines, on the same land, turned in 65,310 pounds zinc ore and 6,030 lead. Snyder Bros. are still in the lead as the largest producers of zinc and lead ore, and last week produced 403,110 pounds zinc ore and 18,320 lead.

Chas. Matt & Co., who are largely interested in both Kansas City and Joplin, located a branch office in Joplin less than a year ago. They bought a tract of 160 acres of land adjoining the city on the northeast. This they plotted off into lots 50 × 150 feet and called it College Hill. They organized the Joplin Rapid Transit and Motor Company, which merged into the Joplin Electric Railway. This has almost completed the grading for the electric line; the track is laid and the cars will be running by November 20th, so that College Hill will soon be part of the city of Joplin. Matt & Co., who have spared no expense to make this location beautiful, will open the sale of the lots Wednesday at public auction, and have secured the silver-tongued caller, Mr. M. Goldman, of the Denver and Kansas City Mining Exchanges. Mr. Goldman, shortly after his arrival in the city, called at the JOURNAL office. He was surprised at the magnitude of the lead and zinc mining industry in this district. To quote his words, "I expected to find a rough, mountainous district something similar to Colorado, but instead I find a beautiful farming section dotted over with lead and zinc mines, where the miner only has to sink a shaft 40 to 60 feet in order to open up a mine, while in Leadville, Colo., they think nothing of sinking a prospect shaft 300 to 500 feet before finding the ore."

ASTER MINE.—This property, on the Turkey Creek Company's land, cleaned up 30,000 pounds of zinc ore last week.

DIAMOND LEAD AND ZINC COMPANY.—This company is putting in a large new plant of machinery; it is now well developed by a number of shafts and underground drifts, exposing large deposits of lead and zinc ore,

JASPER MINING COMPANY.—This new company, organized by B. Gilpin, of Denver, Colo., is operating on the Porter land west of Joplin. The first hole which was drilled to prospect the land cut lead ore at a depth of 85 feet, which, intermingled with gangue, continued to a depth of 144 feet. The second hole proved about the same formation, except that quite an amount of zinc ore was found with the lead. Mr. Gilpin, who also operates the Columbia zinc mine, is now sinking a large development shaft on the land; he has put in position a 50 horse-power steam plant, and is arranging to put up a complete concentrating plant.

## MONTANA.

DEER LODGE COUNTY.

GRANITE MOUNTAIN.—Concerning the reported sale of this mine, to which reference was made in our issue of October 11th, our St. Louis correspondent writes us as follows under date of October 31st: "There are no developments of the Granite Mountain deal. As previously stated, it is a canard."

LEWIS AND CLARKE COUNTY.

ST. LOUIS MINING AND MILLING COMPANY.—Mr. William Mayger, representing this company, has begun suit against the Montana Company, of Marysville, charging trespass and asking damages in the sum of $2,000,000. The action is an outgrowth of the proceedings instituted last year by the St. Louis Company in which an underground survey of the Drum Lummon mine was asked. The petition for survey was granted by the District Court. The Montana Company took an appeal to the State Supreme Court, where the decision of the District Court was affirmed. Subsequently the defendant company appealed to the United States Supreme Court, before which the case is still pending. In response to an inquiry concerning his suit, Mr. Mayger informed the Helena *Journal* that he had positive proof that the Montana Company had trespassed on his company's ground on the 200-foot level; that a perpendicular shaft on the St. Louis had broken into a drift the Montana people had run entirely through his company's ground, which adjoins the Drum Lummon on the south. He is satisfied, he says, that the same trespass has been made on the 500 and 600 levels, and it was to establish evidence on this point that the proceedings for an underground survey were instituted. Damage is claimed on the score of the ore extracted within the lines of the St. Louis ground. The present proceedings will tend to put the burden of proof on the Montana company rather than on the prosecution as under the previous action. The St. Louis is an incorporated company. Its stock is held largely by William and Charles Mayger, of Helena, and by St. Louis parties. [This is an "apex case," the ground in dispute being under the surface owned by the Montana company, and the claim of the St. Louis company being based upon the "extra-lateral right" asserted by that company on the strength of the alleged existence within its St. Louis claim adjoining, of the apex of the lode worked by the defendants. The statement that damages are claimed for ore extracted within the lines of the St. Louis ground is incorrect, if it means under the surface owned by the St. Louis Company.—EDITOR ENGINEERING AND MINING JOURNAL.]

## NEVADA.

(From our Special Correspondent.)

ELKO COUNTY.

SAN FRANCISCO, Oct. 25.

YOUNG AMERICA SOUTH.—This company has just declared its maiden dividend of five cents per share, aggregating $5,0000.

ESMERALDA COUNTY.

CONFIDENCE.—This mine, which is situated in the Gillis range, belongs to Knapp & Laws, of Hawthorne, and is becoming known as a most valuable mine. From ore worked recently at the Mt. Diablo mill the results ran 25 per cent. copper and from seven to eight hundred ounces silver per ton. During the last summer four dividends were paid.

DICTATOR.—Messrs. Tomlinson & Adams, mining experts, have been inspecting this and other properties in the vicinity for Eastern capitalists. The company owns two claims 600 × 1,500, known as the Mountain Chief and the Dictator. A shaft has been sunk 37 feet in copper, and a tunnel run in for 90 feet has so far only cut one wall of the ledge, the extent of which is unknown. The shaft shows no walls. The ore is rich in red oxide and carbonate.

EUREKA COUNTY.

EUREKA CONSOLIDATED.—At the annual meeting held last Monday in San Francisco no changes were made in the directorate. Of the 50,000 shares of stock there were represented 47,183. The financial statement of the secretary showed the net resources of the company to be $100,001.86 over and above all liabilities. During the year 5,000 tons of ore were extracted, all from the upper levels, being a larger amount than for some years past. During the fiscal year just ended three dividends, amounting to $37,500, were paid to the stockholders. Further dividends will be postponed and the profits added to the present net resources for the purpose of pumping and developing the lower levels in case satisfactory arrangements for sharing the expense can be made with the Richmond Company. Negotiations with that end in view are now being made.

LANDER COUNTY.

EAGLE.—Bullion shipments will, it is said, soon be made from this mine. The Eagle mill, owned by the Humboldt Mill and Mining Company, has started up on Eagle ore, and is crushing 30 tons daily.

MANHATTAN MINING COMPANY.—A United States marshal recently levied upon the mining properties of this company at Austin for $150,000. The old Manhattan mill, says the Virginia *Enterprise*, which has been dismantled, and what little ore is extracted from the mines of that once busy district has to be shipped to Salt Lake or elsewhere for reduction.

WELSH.—The project is being discussed of erecting smelters at the mine. At present all the ore, which averages $350 per ton, is shipped some 60 miles to the sampling works at Austin Junction.

WASHOE DISTRICT—COMSTOCK LODE.

ANDES.—Last Saturday J. W. Brown, having reconsidered his determination, resigned his position as president and director. M. P. Hall was elected president and Nat T. Messer a director to fill the vacancies. P. H. Andross, who was appointed secretary in place of J. J. Hawkins when the trouble first broke out, also tendered his resignation, J. W. Tiggs being elected in his place. Joseph R. Ryan was elected superintendent in place of Dominick Briden, who resigned. By these changes James L. Flood has secured three directors out of the five, and therefore gained the control of the Andes mine. At the annual meeting on December 18th some further changes in the board of directors are likely to be made in Mr. Flood's favor. The irregularities in the office have all been adjusted, and at present there is in the bank $17,000 to the credit of the company.

CROWN POINT.—The progress being made in rearranging and fixing the Dow pumps in the incline is very slow. The heat is very great, and an old drift being reopened for ventilation on the 1,500 level has been found badly caved. It will be probably two weeks yet before they start up under a full head of steam for practical reduction of the water. The amount of submerged ground is very large, and, with all the assistance rendered by the Alta pumps, the work is bound to be slow, more particularly when it is remembered that while the first 40 or 50 feet will be comparatively easy, each additional 50 feet makes the work more difficult, increasing until the full capacity of the pumps is reached.

EXCHEQUER.—The annual meeting of the company was held in San Francisco on Monday last, there being represented 88,000 shares of capital stock. The financial statement of the secretary showed a cash balance on September 30th of $13,723.71. A station has been opened on the 600-level, and a lateral drift run north through the Alpha ground for exploring purposes, and near the south line a crosscut has been extended east a distance of 40 feet through porphyry. With this crosscut it is hoped that the body of quartz found east of the Alpha shaft, 180 feet from the Exchequer south line, may be cut. As no crosscuts have reached the vein on this level, it being practically unexplored, hopes of a favorable development are entertained.

## NEW MEXICO.

GRANT COUNTY.

(From our Chicago Correspondent.)

The new mill, consisting of three pair of Bower's concave-convex rolls, 12 Hungarian amalgamating pans or bowls and nine concentrating tables, etc., at Pinos Altos, is nearing completion, and is expected to be put in operation within a very few weeks. The capacity anticipated is 80 tons of gold quartz per day. All the gold mills of Pine Altos and Silver City are running. The Good Hope mine of Lone Mountain, 15 miles southeast of Silver City, which created great interest on account of the extraordinary high grade of its gold and silver ore and its position geologically in a new horizon among the ore-bearing strata of the country, still continues to produce and is said to more than hold its own with increasing development.

## PENNSYLVANIA.

COAL.

The proposed introduction of mining machines in the mines of the Pittsburg district is being opposed by miners. It is claimed that each machine in practice expels from five to eight miners, and they begin to estimate the inroads the machine will make upon their numbers. They find that where 20,000 or 30,000 miners are in demand along the river mines to produce the coal required by operators, this number may be reduced to 10,000 or less if machines are generally put in practice. Miners have been scarce for more than a year, and this fact is largely responsible for the talk in favor of machines.

ANTHRACITE COAL COMPANY.—The annual meeting was held in Pottsville on the 21st inst. The following officers were elected: President, E. A. Packer; secretary, H. C. Russell; treasurer, R. D. Winchester, of Holyoke, Mass. Directors, E. A. Packer and James J. Goodwin, of New York; John L. Houston, of Thompsonville, Conn.; E. J. Fry and Jacob Huntzinger, of Tamaqua, and Henry C. Russell, Pottsville, Pa. The com-

pany was incorporated in 1875, and was the outgrowth of the Schuylkill Coal Company. It controls 3,100 acres of coal lands in the Heckscherville, Deep Creek, Pine Valleys and on Peaked Mountain. This land has not yet been touched by any railroad and has not been opened up.

DELAWARE & HUDSON CANAL COMPANY.—Colliery No. 4 of this company is soon to resume operations. At one time the strata of coal was "lost." After six months' driving in rock, it is said that it was again found and in good proportion. When properly developed, this mine will give employment to about 600 men and boys.

PHILADELPHIA NATURAL GAS COMPANY.—Directors of this company have decided to increase the price of gas to private consumers 50 per cent. The advance will go into effect Dec. 1. The present rate is 15 cents per 1,000 feet, with five cents off for cash payment. The increase decided upon will make the rate 20 cents, with five cents off for cash payment.

OIL.

Exports of refined, crude, and naphtha from the following ports, from January 1st to October 24th, were as follows:

| | 1890. Gals. | 1889. Gals. |
|---|---|---|
| From Boston | 2,246,230 | 4,017,675 |
| Philadelphia | 137,886,419 | 128,760,427 |
| Baltimore | 11,658,503 | 6,158,832 |
| Perth Amboy | 12,756,271 | 13,847,575 |
| New York | 369,901,871 | 371,144,723 |
| Total | 534,449,294 | 523,929,302 |

## SOUTH DAKOTA.

(From our Special Correspondent.)

LAWRENCE COUNTY.

DEADWOOD, Oct. 28.

CALEDONIA GOLD MINING COMPANY.—For several years after the discovery of this mine, which occurred in 1876, its history was a checkered one. Assessment after assessment was levied until a large number of small holders of stock, as well as some of the larger ones, was frozen out. About five years ago Superintendent T. L. Skinner was placed in charge, then the mine commenced to pay expenses, and later on dividends. Up to the present time it has paid $194,000 in dividends. On a recent visit to the mine, which is in charge of John Blatchford, who is considered one of the best miners in the West, our attention was attracted to the economical method of operations. The hardness of the ore, which is the hardest free milling in this section, permits the working without the use of timbers. The deepest workings are 600 feet. The ore is mined from all of the levels, 100 feet apart, and hoisted from the lowest.

There are three direct vertical fissure veins exposed in the workings. Ore is blasted out in the stope in large enough quantities at one blast to run the mill for months at a time. At present holes are drilled in one of the pillars that will admit of a charge of 1,000 pounds of powder. This will be shot off in a short time by means of a battery attachment. Past experience demonstrates that this can be done with perfect safety to the workings. To see this mine lighted up on each level is indeed a sight to be long remembered. The Caledonia is located on the same belt as the Homestake and Golden Terra, and while the ore averages about the same value, yet it is so much harder in character that nearly a ton a day less to the stamp is crushed. The mill is of one hundred stamp capacity.

## VERMONT.

COPPERFIELD MINING AND SMELTING COMPANY.—The shaft has been sunk 74 feet in solid ore. On the south side a splendid vein, from 5 to 10 feet high, extends 46 feet. The north side has developed from 55 feet into 83 feet stoping ground, the vein varying from 7 to 14 feet high. The pillar left in this section is 16 × 20 feet at its base. The northeasterly stope has all indications of becoming one of the richest of the mine. There are 184 men now employed in mine and furnaces.

## WASHINGTON.

OKANOGAN.

FOURTH OF JULY.—This mine has been shut down. The reason is said to lie in the hesitancy of one of the stockholders, who owns an eighth interest, to co-operate with the management. There will be no further developments until an agreement is reached. A railroad is now under way of construction to the mine, and will be completed about the first of the year.

SKAGIT COUNTY.

FAIRHAVEN GRAPHITE COMPANY.—This company has shipped the first graphite from its mines near Samish Lake. It was sent to the Puget Sound Asbestos Company, of Tacoma, to be used in the manufacture of fire-proof paints. This ore is simply the surface croppings and is not of the best quality. Indications are said to promise a better showing lower down.

## WEST VIRGINIA.

COAL.

Within the past two years very large purchases of coal lands have been made in the vicinity of Fairmont, and mines opened up, giving employment to about a thousand miners, while several hundred coke ovens are in full blast, with others building. It is said that 15,000 acres of the coal lands in this field have been sold to corporations which will at once commence operations, and other deals are on the *tapis* and will be consummated in a short time. One of the big deals just made involves 7,000 acres in the Morgan settlement, on the Monongahela river, and a 3,000-acre tract on the West Fork, and $25,000 of the purchase money has been paid over. This deal involves not only the opening of very extensive mines, but the construction of the West Virginia & Pennsylvania Railroad, an enterprise which will open up additional coal fields throughout the Monongahela valley.

Pittsburg, Baltimore and Philadelphia capitalists are largely interested in this and other ventures, and among them is M. Saxman, Jr., representing a syndicate which has just purchased a five-thousand-acre tract between this place and Barracksville. It extends along the railroad a distance of five miles, and the coal is said to be eight feet thick and of superior quality. The property will be at once developed, and next summer several hundred coke ovens will be erected.

A syndicate has recently purchased about 8,000 acres of coal land, located along the Monongahela River, and on the proposed extension of the Pennsylvania railway system in Monongalia County, West Virginia. It is supposed that the intention is to secure the coal territory, and to complete the road. About 800 ovens in the three counties of Harrison, Marion and Monongalia are in active operation; these have demonstrated the superior coking quality of the coal. The field has large resources in the way of natural gas, fire clay, tile and brick clay, limestone and glass-sand, which will insure its prosperity when this line of railway, in competition with the B. & O. system, is complete.

An oil suit—E. J. Garvey & Co. vs. E. M. Hukill—involving $350,000, was decided on the 26th inst., at Morgantown, in favor of the plaintiff. The defendant had forfeited a lease of 380 acres in the Mt. Morris oil field, which the owner leased to Garvey & Co. The latter put down several wells, which proved good. Hukill then tried to obtain possession of the lease.

Last week, says an exchange, 15,000 acres of the most valuable coal lands in the Fairmount field were sold to corporations. One of the big deals consummated involves 7,000 acres in the Morgan settlement, on the Monongehela river, and a 3,000-acre tract on the West Fork; $25,000 of the purchase money has been paid over. Mr. Saxman, Jr., represents a syndicate which has purchased a 5,000-acre tract between Fairmount and Barracksville.

CHARLESTON MINING AND CONSTRUCTION COMPANY.—This company has been formed with a capital of $50,000, to operate coal and iron mines in the vicinity of Charlestown, Jefferson County.

## WYOMING.

ALBANY COUNTY.

OTRAS MINING COMPANY.—This is an English corporation. Its mines, the principal of which are the Florence and Keystone, are located on Douglas creek. At the last-named mine there is a 20-stamp mill, which is kept busy night and day. It is said that rich gold-bearing iron ore is being taken from the Florence, and work will be actively carried on during the coming winter.

# FOREIGN MINING NEWS.

## AFRICA.

(From an Occasional Correspondent.)

TRANSVAAL.

JOHANNESBURG, August 20, 1890.

The outlook at Johannesburg has not improved during the winter months, although the Volksraad has granted many of the prayed-for and promised reforms. At least one railroad is to be built, which will bisect the country and connect with two other lines in adjoining states, which have seaport termini. The mining laws (gold laws) have been revised and prospectors' and diggers' licenses reduced, the former to five shillings and the latter to fifteen shillings per month. Taxes have also been slightly reduced. Some idea of the burden the mining industry has had to bear can be gained from a glance at the revenue returns for the first six months of 1890:

| | 1889. | 1890. |
|---|---|---|
| Prospectors' licenses | £95,242 | £62,824 |
| Diggers' licenses | 61,411 | 66,663 |
| Battery sites | 760 | 783 |
| Wood licenses | 574 | 356 |
| Transfer duty | 38,264 | 16,458 |
| Customs | 120,631 | 140,300 |
| Sundry revenues | 130,420 | 88,330 |
| | £447,302 | £375,714 |

Of this amount the Witwatersrandt (Johannesburg) paid: 1889, £237,230; 1890, £197,951.

From the above it will be seen that the largest amount received in 1889, next to customs, was from prospectors' licenses, where it should have been lightest.

The share market continues in the dumps, and the great cry for some time past has been reconstruction and refloatation, with reduced capital and increased working capital, and many are the schemes proposed to rehabilitate some of the embarrassed companies. Recently some queer methods of financiering have come to light, which were the principal means of wrecking a number of companies. The *modus operandi* was quite unique. A company was formed with a large capital; in the articles of incorporation a clause was inserted permitting the investment of the surplus working capital in the shares of other companies. This was, apparently, harmless but proved disastrous, as there was commenced (by a shrewd manipulator) a system of godfatherism. The surplus working capital of the first company so formed was invested in the shares of company No. 2, which in turn passed the capital on to company No. 3, in exchange for shares, and so on. In this manner a number of companies were successfully floated, and the scheme worked excellently while the boom lasted. When the crash came all the connected companies went down together.

The Macarthur Forrest process has been tried on the ore of various companies with the following results:

| MINE. | Quantity treated. | Assay value per ton. Oz. | Dwt. | Gr. | Per cent. of gold extracted. | Description. |
|---|---|---|---|---|---|---|
| Robinson | 2,744 lbs. | 3 | 18 | 9 | 89·6 | Free-milling concentrates. |
| Salisbury | 18,802 lbs. | 6 | 3 | 11 | 93·2 | Concentrates. |
| " | 10 tons. | 2 | 7 | 9 | 80·2 | Residues from pan amalgamation. |
| City & Suburban | 13,440 lbs. | | 17 | 4 | 85·0 | Tailings. |
| Langlaagte E. | 2,176 " | | 15 | 12 | 84·1 | " |
| " " | 2,176 " | 6 | 13 | 2 | 93·9 | Concentrates. |
| Gainsberg Sy. | 5,760 " | 1 | 7 | | 90·0 | Pyritous ore. |
| Novitgedacht | 6,210 " | | 19 | 14 | 90·8 | " " |
| Wilkinson | 1,763 " | | 8 | 4 | 80·0 | " " |

The above results were published by the Gold Recovery Syndicate.

The output for July was 39,452 ounces. The following is the progressive output since January 1st:

| | 1888. Ounces. | 1889. Ounces. | 1890. Ounces. |
|---|---|---|---|
| January | 11,269 | 24,986 | 35,082 |
| February | 12,161 | 25,800 | 36,816 |
| March | 14,706 | 28,705 | 37,680 |
| April | 15,853 | 27,131 | 38,380 |
| May | 19,002 | 33,298 | 38,844 |
| June | 16,328 | 31,272 | 37,412 |
| July | 19,966 | 32,497 | 39,452 |
| August | 19,877 | 32,142 | ..... |
| September | 20,219 | 34,369 | ..... |
| October | 27,775 | 31,914 | ..... |
| November | 27,336 | 36,116 | ..... |
| December | 26,148 | 39,218 | ..... |
| | 230,640 | 382,358 | 263,673 |

## BRITISH COLUMBIA.

(From our Special Correspondent.)

REVELSTOKE, Oct. 15.

Some very good ore was recently discovered near Trout Lake, in what is familiarly known as the Lardeau country, a section of British Columbia which has hitherto, on account of its inaccessibility, been very little prospected. This district forms the connecting link between the Hot Springs and Illecillewaet mining camps, and for some years it has been expected that mineral would eventually be found there. Five locations were made: the Alice, a sample from which gave 10 ounces gold, 37 ounces silver and 72 per cent. lead; the Homestake, assaying from 25 to 100 ounces silver, trace to 0·80 ounces gold and 20 per cent. lead; the Highland Mary, carrying 50 ounces silver and 73 per cent. lead; the Clara, 31 ounces silver and 50 per cent. lead, and the Copper King, 10 ounces silver and 20 per cent. copper. Some work will be done on these claims during the winter, and it is expected that by spring their worth will be sufficiently demonstrated to determine whether any further expenditure will be warranted.

DUNVEGAN.—At this mine on Fish creek a tunnel has been driven about 80 feet and 70 feet below the long tunnel which was run last spring. A shaft which is being sunk is down 12 feet and in fairly good ore.

OAKLEAF.—At this mine an extension of the Maple Leaf, the assessment work has been executed, and nothing further will be done this year. The vein shows 18 inches of good Galena ore.

SELKIRK MINING AND SMELTING COMPANY.—At Illecillewaet this company is running a tunnel on the Lanark mine to tap the vein. It is now in over 300 feet and will be continued until January, when it is expected operations will cease for the winter. The company is also doing the assessment work on the Sutton and Sprague. At the Maple Leaf a tunnel is being driven on the vein; it is now in about 50 feet, and shows about 3½ feet of good Galena and carbonate ore. The owner expects to work the mine all winter. The shaft now down 35 feet (from the bottom of which the ore was found by cross-cutting about 15 feet) will be lengthened and a second tunnel driven about 100 feet higher than the present one.

UNITED No. 1.—At these mines, located at Ho Springs, a full force of men will be kept all winter. Over 1,000 tons of ore are now out on the United. An ore-house will be built on the lake, and the ore will be brought down during the winter, so that it will be ready for shipping in quantity early next spring.

## CANADA.

### PROVINCE OF NOVA SCOTIA.

(From our Special Correspondent.)

#### COAL.

In all the coal fields many miners are leaving for the new coal mines being opened in the Canadian northwest, and cutters will be scarce next summer.

FOORD.—The work of reopening this pit located in Pictou county, under the management of Mr. Wills, is progressing favorably. It is reported that the output will reach 1,000 tons a day next spring. The coal from this seam makes a very good coke, low in sulphur and phosphorus and not unusually high in ash.

GARDENER.—In Cape Breton county the work of reopening this mine is making satisfactory progress, and new and substantial boilers, pithead, screens, etc., are being put up.

LOWRIE.—It is reported that these mines have contracted for a shipment of 10.000 tons to Boston.

SPRINGHILL.—Heavy feeders struck in the pillar workings, and the autumn rains have slightly decreased the output of the coal mines, although the pumping plant is unusually efficient.

STANLEY.—These coal areas, owned by Amherst parties, are reported as being on the point of conclusion of a sale.

The work of developing the conglomerate at Brookfield has been somewhat delayed by differences arising between the Messrs. Morris, McGuire and Nelson as to the location of their respective starting points. From surveys made it is considered probable that their difficulties will be settled without a reference to the Commissioners' Court being necessary.

#### GOLD.

NEPTUNE GOLD MINING COMPANY.—This company of Gold River, Chester, has resumed prospecting, and samples from the Jumbo lead are said to have yielded at the rate of 200 ounces to the ton.

OLDHAM GOLD COMPANY.—This company is building a new 10-stamp mill at Oldham for its own mines and for custom work.

## CENTRAL AMERICA.

### SAN SALVADOR.

SAN SEBASTIAN GOLD MINING COMPANY.—This company has leased its mine, located in La Union. On September 10th C. G. Collins, mineralogist, and Dr. D. V. Kyte, chemist, of the new management, set sail for the mine. Machinery with a capacity of from 60 to 100 tons preceded the experts by two months. Assays of the ore made by a dozen different assayers of this and other countries are said to run from $35 to $700 a ton. The mine is to be fully equipped and worked for all there is in it.

## MEXICO.

(From our Special Correspondent.)

### SAN LUIS POTOSI.

October, 1890.

The Real de Catorce district, ranking fourth among the mining districts of Mexico in production of silver bullion, and in the number of men employed mining, has, within the last decade, barely sustained its repute as one of the richest mining camps in the republic. The coming of the American ore buyer—nearly all the great smelters west of the Missouri River having agents in Catorce—has created a market for ores, which, on account of zinc sulphide in plenty, pyrites and a slight percentage of galena, could not be smelted at the native adobe furnace profitably, nor disposed of formerly in any way, except to enlarge the waste dumps of the various mines. That at and near the surface "bonanzas" of free ores were found a visitor and observer here would hardly doubt. Also, in the records of the past hundred years is written, while abandoned reduction works, acres in extent, go to show what the prosperity of Catorce has been, but is not. This is the land of the "Socabon," or adit level. So favored by natural situation, are most of the mines that, except at the shafts of the Concepcion and "Ave Maria," no hoisting apparatus is required.

Gravity, the most economical and easily controlled of all servants, drains the San Augustine mine through a tunnel, to be marveled at for its amplitude of section and a directness of course not surpassed by the flight of a well directed arrow. The timbering, track and car equipment are such as to surprise an American acquainted with other Mexican districts still in the "tenate" and "malacate" condition. American processes of ore treatment have been heard of in this section of Mexico by a favored few. To the majority, though, they sound like a tale of Haroun Al Raschid's time. It puts a native's politeness to the task to state that 85 per cent. of the silver in a free milling ore can be recovered by pan amalgamation ten hours after passing the rock breaker.

About American mining enterprise: To tell of a production of 200 tons of ore daily from a silver mine, can only be to the injury of the best reputation for veracity. Great is the distrust, too, of all devices American. To sell an air drill plant, guarantees are demanded that the machinery will perform the work which all engineers must know will be performed by a compressor of a given diameter and stroke, when erected at a known altitude—American agressiveness, here finding expression, often in a contempt of all European machinery, is receiving just as good as sent, for the engineers the greater part German and English, are hostile to any thing from the United States, whether in the mining or in the reduction line. American failures again, the rusting wrecks of which bestrew the land from the neutral zone of the north to Chiapas in the south, is instanced as of how little account Americans as miners are. The industrial awakening, so marked all over Mexico, will be of peculiar benefit to the mining districts, and especially Catorce.

The building of smelters is beyond newspaper talk—one hundred and fifty miles northof Catorce, at Monterey the furnaces of the Nueva Leon Smelting, Refining and Manufacturing Company, Samuel Lederer President, will be blown in during the next 90 days. This, the first custom smelter in Mexico, has already a stock of thousands of tons of both dry and lead ores, purchased along the railroads tributary to its works. Catorce has supplied no insignificant part of the dry ore. Mr. Eugene Crotti the agent of the Monterey smelter, is enabled to pay such prices for ores in Catorce that the competition of American smelters is becoming daily more and more impossible. Better still for Catorce all the arrangements are being perfected by the Mexican Ore Company, otherwise the Kansas City Smelting and Refining Company, to establish a large custom smelting plant at San Luis Potosi, the capital of the state in which Catorce is situated and only 70 miles distant by rail. Yea verily, the good work goeth on.

The ruling of the United States Treasury Department touching lead ores may have precipitated Mexican home smelting; but it would have come finally. The low grade lead carbonate ores of Monterey and those of other localities could not afford shipment to the United States. With already an export tax on one of two per cent., which would have been raised to a figure by the federal government sufficient to render prohibitory the sending of ores abroad, the chances of American smelters for Mexican ores in the future is indeed slim. Add to this the desire of the Mexicans to encourage an industry at home which, giving employment to thousands of now idle people, will also retain in the country, as an addition to the national wealth, the hundreds of thousands of dollars yearly spent in the United States for the meeting of Mexican ores.

### LOWER CALIFORNIA.

(From our Special Correspondent.)

SAN FRANCISCO, Oct. 25.

ST. NICHOLAS AND SAN FRANCISCO.—Since February this mine has been idle. Recently a steam pump was set to work to unwater and put it into shape for working. Last week Messrs. Morales & Villagrano and the Ybana Bros., of Ensenada, sold their interest in the property to M. Gonzales & Co. The mine, which is situated at Real del Castillo, will now be actively worked, the causes which have hitherto prevented development work being now removed.

## SOUTH AMERICA.

### VENEZUELA.

THE VENEZUELA-AUSTIN GOLD MINING COMPANY.—It is officially stated that the company has reason to fear that "all the gold is not being amalgamated," and accordingly new machinery is to be obtained. The secretary of the company issued a circular recently, which is as follows: Referring to the circular sent you on the 17th May, the directors informed you that they had decided to stop the mill in consequence of the low grade of the ores and the small amount of ore reserves. Since that time works of exploration have been actively proceeding under the new management, who report that there are now fully 15,000 tons of ore in sight. The managers advise the directors to start the mill again, and it is hoped that a higher grade of ore has been found. The directors, acting on this recommendation, have ordered the mill to work again. The latest advices from the mines show that it is in the north levels that the best results may be anticipated, and the whole of these levels are being pushed forward as rapidly as circumstances will permit. A strong feeling seems to be entertained that, in order thoroughly to prove this mine, deeper workings must be undertaken. The shareholders are aware that the company possesses extensive concessions besides those now being worked, some of which are alleged to possess very good prospects. A new mine is in course of being opened at the "Pinta Americana," which is near the present workings; the directors have received encouraging reports of this mine. The directors have not been able to push these works with the speed which they appear to merit owing to the small amount of cash capital at their disposal, and they recommend that further capital should be provided by an issue of £50,000 nominal in mortgage debenture bonds, which sum, it will be seen, represents five per cent. upon the total issued capital of the company, or, in other words, is equivalent to an assessment of 1s. in the pound upon each shareholder's holding. The debentures will, in the first instance, be offered to the shareholders rateably.

## MEETINGS.

Adams Mining Company of Colorado, at the office of the company, Leadville, Colo., November 20th, at 10 A.M.

Big Six Mining and Milling Company, at No. 1707 Curtis street, Denver, Colo., November 21st, at 7 P.M.

## DIVIDENDS.

Tennessee Coal, Iron and Railroad Company, the coupons on the bonds of the Pratt Coal and Iron Company also the coupons on the consolidated bonds of the Tennessee Coal, Iron and Railroad Company will be paid on and after November 1st at the Mechanics' National Bank, New York City.

Young America South Mining Company, dividend No. 1 of five (5) cents per share, payable on and after October 28th, at the office of the company, No. 314 Montgomery street, San Francisco, Cal.

## ASSESSMENTS.

| COMPANY. | No. | When levied. | D'l'nq't in office. | Day of Sale. | Amn't per share. |
|---|---|---|---|---|---|
| Alliance, Utah..... | 9 | Oct. 15 | Nov. 15 | Dec. 8 | .10 |
| Alpha, Nev ..... | 5 | Sept. 16 | Oct. 22 | Nov. 11 | .25 |
| Baker Divide, Cal... | 18 | Oct. 7 | Nov. 11 | Dec. 4 | .20 |
| Challenge, Nev ..... | 7 | Sept. 26 | Oct. 28 | Nov. 17 | .50 |
| Con. Imperial, Nev.. | 29 | Oct. 13 | Nov. 15 | Dec. 8 | .05 |
| Goleta, Cal..... | 1 | Sept. 16 | Oct. 27 | Nov. 24 | .10 |
| Gould & Curry, Nev | 65 | Sept. 16 | Oct. 21 | Nov. 13 | .30 |
| Hale & Norcross.... | 96 | Oct. 7 | Nov. 12 | Dec. 3 | .50 |
| Leigh Gravel. Cal. | 1 | Sept. 3 | Oct. 13 | Nov. 5 | .25 |
| Live Oak D. Gravel, Cal..... | 12 | Sept. 3 | Oct. 9 | Nov. 10 | .05 |
| Lockport, S. Dak.... | 6 | Sept. 10 | Oct. 10 | Nov. 10 | .002 |
| Martin White..... | 24 | Oct. 17 | Nov. 24 | Dec. 16 | .25 |
| Mexican, Nev..... | 41 | Oct. 18 | Nov. 20 | Dec. 10 | .25 |
| Mono, Cal..... | 30 | Sept. 18 | Oct. 28 | Dec. 2 | .25 |
| North Peer, Ariz.... | 6 | Oct. 1 | Nov 5 | Nov. 25 | .05 |
| Russell, Cal ... | 7 | Oct. 13 | Nov. 17 | Dec. 8 | .05 |
| Seg. Belcher..... | 7 | Oct. 7 | Nov. 10 | Dec. 1 | .25 |
| Silver Hill .... ..... | 27 | Oct. 8 | Nov. 13 | Dec. 3 | .20 |
| Silver King, Ariz... | 4 | Sept. 20 | Oct. 28 | Nov 18 | .30 |
| Sterling, Cal..... | 1 | Sept. 16 | Oct. 27 | Nov. 24 | .06 |

## MINING STOCKS.

For complete quotations of shares listed in New York, Boston, San Francisco, Baltimore, Denver, Kansas City, Minneapolis, St. Louis, Pittsburg, Birmingham, Ala.; London and Paris, see pages 523 and 524.

NEW YORK, Friday Evening, Oct. 31.

In point of inactivity the mining market during the past week has been in the condition reported for months. One consolation is that it is no worse than usual. There are no features of interest and no particular change in any stock.

It is remarked that no stock is pressing on the the market, holders evidently being indisposed to sell at present prices. On the other hand, we do not notice much demand for any one stock. Altogether there seems to be a lack of confidence; no one appears willing either to do much buying or much selling.

Of the California stocks, Quicksilver preferred was steady at $40.50@$41.50; Astoria was stationary at 5c. Sutter Creek at $1.25 was dealt in to the extent of 900 shares.

Brunswick Consolidated shows the largest sales, transactions in it aggregating to 30,300 shares at 7c.@8c.

Mutual Smelting and Mining Company was in fair demand at $1.45@$1.50.

El Cristo was neglected at 75@80c.

San Sebastian shows a solitary sale of 100 shares at 60c.

Of the Colorado shares, Adams was steady at $1.90@$2. Leadville Consolidated was dealt in to the extent of 1,225 shares at 15@17c. Little Chief appeared in some demand at 31@35c. Silver Cord was stationary at 40c. Small Hopes shows a solitary transaction at 90c. and Crescent another at 15c.

Of the Comstocks, Alta was sold at from $1.50@$1.95. Andes shows two sales at $2.40@$2.60. Best & Belcher was neglected at $3.35@$3.50. Bullion shows one sale at $3.20. Comstock Tunnel has one transaction at 16c. Chollar was quiet at $3.15@$3.25. Consolidated Imperial has one sale at 45c. Exchequer at from $1.40@$1 55 was dealt in to the extent of 500 shares. Julia was steady at 40c., with one sale at 39c. Mexican was quiet at $3.15@3.40. Occidental was dealt in at $1.75@$1.90. Potosi has only one sale at $6.63. Scorpion was quiet at 40c., and Segregated Belcher has one sale at $1.45. Union Consolidated declined from $3.15 to $3. Utah was steady from $1.20@$1.25, and Consolidated California and Virginia at $4.40@$4.60. Gould & Curry was quiet at $2.35@$2.50. Hale and Norcross was stationary at $2.15 Ophir was quiet at $4.90@$5. Yellow Jacket shows one sale at $3.50. Kentuck was traded in this week at $2.10.

Of the Tuscaroras, Belle Isle shows one sale at 85c., and Navajo was dealt in to the extent of 600 shares at 40@45c. Savage has a sale at $3.

Trading in the copper stocks continues. We

note one sale of Atlantic at $17.38 and another of Calumet and Hecla at $281.25. Of Franklin 100 shares at $19.13 were sold. There is a solitary sale of Quincy at $100.03. Huron declined from $5.13 to $4.38.

Minnesota Iron Company shows sales of 120 shares at $83.50.

Trading in Alice has been resumed; 500 shares were sold at from $2 to $2.10.

Of the Black Hills stock 100 shares of Caledonia at $1.30 were sold. Homestake was dealt in to the extent of 210 shares at $9.25@$10.

Trading in Ontario was comparatively heavy, and 655 shares at from $38.50@$42 were sold. Horn Silver was steady and in fair demand at $3.45@$3.50.

Silver King was sold at 15c.@18c., assessment not paid, and at 55c. assessment paid.

Phœnix of Arizona declined during the week from 80c. to 7°c., and 2,300 shares were sold at these prices.

### Boston. Oct. 30.

(From our Special Correspondent.)

Copper stocks continue to decline under the influence of the depression in the general stock market, and this, notwithstanding the copper situation, is apparently as strong as ever. It is possible that a lower price may prevail for the metal, and that holders are selling their stocks in anticipation of a decline in that direction; but the fact is patent that, while ingot has held firm in the neighborhood of 17c. per pound, prices of the leading stocks in the market have declined from 20 to 75 per cent. from the highest prices in May last. If they are not cheap now, they certainly were selling much above their intrinsic value then. We believe, however, that purchases made at this time cannot fail to yield the buyer large profits during the coming year.

A raid was made on Allouez at the beginning of the week, and the price was forced down to 4¼, with a quick recovery to 5¼. after which it was again sold down to 4½, recovering to $5. Sales to-day at 4¾. The reports from the mines state that the rock in the drift at bottom of the exploring shaft is improving in appearance, and is similar to the hanging trap rock overlying the conglomerate in the Tamarack mine. The mining captain thinks that they are about 30 feet from the vein. We are inclined to believe that Allouez at present prices is the cheapest stock on the list.

Atlantic, which has been working through a poor streak of ground the past two years, is now entering upon a better part of the vein. Stock declined from $19¾ to $17 on the general depression, there being more stock than usual on the market. Boston & Montana opened at $52¼ and sold down to $48. Butte has held quite firmly under the conditions, selling at $17½ and later at $16. Calumet and Hecla, whose output the past week was 951 tons, declined from $290 to $280, and was more freely offered than usual.

Centennial opened at $20, but yielded under the pressure to sell to $15½. Franklin declined from $21 to $17. At a special meeting of stockholders last Friday the directors were authorized to make such additional purchase to the property as they deemed prudent. Capt. Vivian, who was present, explained why it was essential for the company to purchase the Pewabic and stated that if acquired it would probably add twenty or thirty years' life to the Franklin mine. It was generally conceded that the purchase was desirable and the directors will no doubt endeavor to secure the property at a fair rate. The sale which was advertised to take place November 6th has been postponed for six weeks. There has been no order from the court for a sale of the property, but the sale was advertised by the assignees, so as to fulfill the requirements of the statutes. National sold at $1½. The water has been cleared from the mine and active operations will be commenced at once.

Kearsarge has been very lightly dealt in the past week, but sold down to $12½.

Osceola has been one of the weakest stocks on the list; everybody seems to have some for sale. It declined from $39½ to $36¾ for a dividend-paying mine; with its good outlook for the future it would seem to be a desirable investment.

Quincy was also very weak, selling down to $95, a decline of $14 from the last sale, October 21st.

Tamarack has been down to $158 and up again to $170, but could not hold the price, and sold off again to-day to $162. There is some adverse criticism in regard to the manner in which the accounts of the company have been kept, and it is stated that hereafter construction costs will be charged to expense and the surplus maintained at $1,000,000.

Santa Fé sold at 50c.@45c., and a small lot of Pewabic at $15.

Silver stocks dull and quiet. Sales of Dunkin at 70c.

3 P. M.—Since the noon hour copper stocks have been heavy and lower. Allouez sold down to $4½, Boston & Montana to $47, Centennial to $15, Franklin to $16½, Kearsage to $12, Osceola to $35, and Tamarack to $155.

Quincy was 90 bid, 93 asked, and the best bid for Tamarack was $150.

*By Telegraph.*—Allouez, $4½; Atlantic, $16½ Boston & Montana, $47; Butte & Boston, $16¾; Calumet & Hecla, $280; Centennial, $16½; Franklin, $16½; Kearsarge, $12 bid; Osceola, $35½ Quincy, $90; Tamarack, $155.

### Denver.

Prices and sales for the week ending Oct. 27th.

| Company. | Opening. | H. | L. | Closing. | S. |
|---|---|---|---|---|---|
| Alleghany, Colo. | 14¼b | 15 | 15 | 13 | 100 |
| Amity, Colo. | 02½b | 03 | *03 | 02¾ | 4,000 |
| Bangkok, C. B., Colo. | *09b | *09 | 08 | 08 | 5,400 |
| Bates-Hunter, Colo | .... | 48b | 44 | 45 | 6,300 |
| Brownlow, Colo. | 08½b | *08½ | 08¾ | 07½ | 600 |
| Calliope, Colo. | 30b | ‡32 | *32 | 30 | 500 |
| Cash, Colo. | 12b | 14b | 06b | 12 | .... |
| Clay County, Colo. | 76b | 89 | 85 | 89 | 3,700 |
| Hard Money, Colo. | .... | 02½b | 02b | 02 | .... |
| Leavenworth | 59b | ‡72 | ‡59 | 65 | 2,600 |
| Little Rule, Colo. | 87b | 87 | 87 | 87 | 5,800 |
| Matchless, Colo. | 25b | 100b | 25b | .... | .... |
| May-Mazeppa, Colo. | 101b | 105 | 102 | 105 | 3,800 |
| Mollie Gibson, Colo. | .... | 50b | 30b | 25 | .... |
| Oro, Colo. | 50b | 52b | 12b | 50 | .... |
| Pay Rock, Colo. | 05b | 05 | 04¾ | 04¾ | 7,400 |
| Puzzler, Colo | 08b | 08¼b | 07½ | 07¼ | 2,000 |
| Reed-National, Colo. | 71b | 71b | 70 | 70 | 600 |
| Running Lode. | 18½b | 26 | 19½ | 26 | 1,600 |
| Silver Cord, Colo. | 32b | 35b | 32b | 35 | .... |
| Whale, Colo | 17½b | 18 | 17 | 17 | 2,000 |
| Prospects: | | | | | |
| Argonaut, Colo. | 25¼b | 26b | 24b | 24 | .... |
| Aspen United, Colo. | 07¾ | 07¾ | 05 | 05½ | 3,500 |
| Big Indian, Colo. | 09½b | 10 | 09 | *07 | 1,300 |
| Big Six, Colo. | 05½b | 07½ | 05¼ | 07 | 11,500 |
| Century, Colo. | 25b | 29 | 27 | 29 | 1,500 |
| Claudia J Colo. | 06½ | 06¾b | 06 | 06 | 800 |
| Nat. G. & Oil Co. | 18b | *21 | 18 | 17 | 1,600 |
| Diamond B., Colo. | 03¾ | 03¾ | 03¼ | 02½ | 4,700 |
| Emmons, Colo | 32b | *35 | 32 | 32 | 2,000 |
| Golden Treasure, Colo. | 21b | 2½ | 23 | 23½ | 7,800 |
| Ironclad, Colo. | 07b | 07¾ | 07½ | 07¾ | 600 |
| John Jay, Colo. | 15a | 14 | 13½ | 13½ | 1,100 |
| Justice | 10½b | 11 | 11 | 10½ | 300 |
| Legal Tender, Colo. | 02½b | 02½ | 02¼ | 02¼ | 1,700 |
| Morning Glim, Colo. | 48 | 48 | 47 | 47 | 900 |
| Park Consolidated | 24¾ | *26 | 24½ | 24 | 3,700 |
| Potosi, Colo. | 07½b | 07¾ | 07¼ | 07¼ | 2,700 |
| Rialto, Colo. | 55b | 55b | 50b | 52 | .... |
| Total for the week | | | | | 91,900 |

*Buyer 30 days. †Buyer 60 days. ‡Seller 60 days. §Seller 30 days. a Asked. b Bid.

### St. Louis. Oct. 29.

(From our Special Correspondent.)

Prices and sales for the week ending Wednesday, Oct. 29, 1890.

| Company. | Opening. | H. | L. | Closing. | Sales |
|---|---|---|---|---|---|
| Adams | $1.90 | .... | .... | 2.00 | .... |
| American & Nettie | .77½ | 1.00 | .... | .95 | 2,700 |
| Bi-metallic | 34. | .... | .... | 33.50 | .... |
| Central Silver | .21¼ | .22½ | .18¾ | .21¼ | 6 200 |
| Cleveland, Colo. | .05 | .... | .... | .04½ | 1.500 |
| Cleveland, Idaho. | .06 | .07 | .... | .06½ | .... |
| Gold King | .13½ | .... | .... | .12½ | .... |
| Granite Mountain. | 46.25 | 46.50 | 45. | 46.25 | .... |
| Hope | 1.55 | .... | .... | 1.85 | .... |
| La Union | .08 | .08½ | .... | .08 | 3,700 |
| Little Albert | .20 | .... | .... | .15 | .... |
| Mickey Breen | 1.70 | 1.75 | 1.60 | 1.70 | 1,200 |
| Major Budd | .04½ | .... | .03½ | .06 | 600 |
| Mountain Key | .38¾ | .... | .... | .42½ | .... |
| Montrose | .41¼ | .52½ | .... | .51¼ | 100 |
| Pat Murphy | .10½ | .11½ | .... | .11 | 300 |
| Richmond Hill | .... | .... | .... | .... | .... |
| Small Hopes | .85 | .... | .80 | .85 | .... |
| Silver Age | 1.90 | 2.00 | .... | 1.95 | 100 |
| Wire Patch | .12 | .... | .11 | .12 | .... |
| Yuma | .40 | .... | .... | .45 | 700 |
| Total | | | | | 17,100 |

### Lake Superior Iron and Gold Stocks.

(Report by David M. Ford, Ishpeming, Mich.)

IRON MINING STOCKS.

| Name of company. | Par value. | Bid. | Asked. |
|---|---|---|---|
| Ashland Iron Co. | $25.00 | $55.00 | $60.00 |
| Aurora Iron Co. | 25 00 | 7.50 | 8.50 |
| Champion Iron Co. | 25 00 | 100 00 | 105.00 |
| Chandler Iron Co. | 25.00 | 41.00 | 42.00 |
| Chicago & Minn. Ore Co. | 100.00 | 115.00 | 118 00 |
| Cleveland Iron Co. | 25.00 | 17.00 | 17.50 |
| Germania | 25.00 | 11.50 | 12.00 |
| Jackson Iron Co. | 25.00 | 110.00 | 125.00 |
| Lake Superior Iron Co. | 25.00 | 68.00 | 78.00 |
| Milwaukee Iron Co. | 25.00 | 5.50 | 6.50 |
| Minnesota Iron Co. | 100.00 | 86.00 | 87.00 |
| Montreal Iron Co. | 25.00 | 9.00 | 10.00 |
| Norrie (Metropolitan) | 25.00 | 75.00 | 78.00 |
| Odanah Iron Co | 25.00 | 21.00 | 22 00 |
| Pittsburg Lake Angeline Co. | 25.00 | 175.00 | 200.00 |
| Republic Iron Co. | 25.00 | 40.00 | 41.00 |

GOLD MINING STOCKS.

| Name of Company. | Par value. | Lowest. | High. |
|---|---|---|---|
| Gold Lake Mg. Co. | .... | .... | .... |
| Grayling Gold & Silver Co. | $25.00 | .... | .... |
| Michigan Gold Co. | 25.00 | .... | .65 |
| Peninsula Gold & Silver Co. | 25.00 | .... | .50 |
| Ropes Gold & Silver Co. | 25.00 | 1.75 | $2.00 |

### Salt Lake City. Oct. 18.

| Company. | Opening. | Highest. | Lowest. | Closing. | Sales. |
|---|---|---|---|---|---|
| Alice, Mont. | 2.00 b | 2 00 b | 2.00 b | 2.00 b | .... |
| Alliance, Utah | 2.70 b | 2.70 b | 2.60 b | 2.70 b | .... |
| Anchor, Utah. | 6 75 b | 6.75 b | 6.50 b | 6.50 b | .... |
| Apex, Utah | 18¼ b | 18¼ b | .16 b | .17½ b | 19,400 |
| Barnes, Utah | .05 b | .05 b | .02 b | .05 b | 2,000 |
| Cent.-Eureka, Ut. | 35.00 b | 36.50 b | 35.00 b | 36.50 b | 100 |
| Congo | .14 b | .17 b | .14 b | .17 b | 10,100 |
| Crescent, Utah | .26 b | *.28 b | .26 b | *.28 b | 8,100 |
| Daly, Utah | 22.25 b | 22.25 b | 22.00 b | 22.25 b | .... |
| Glencoe, Utah | 1.10 b | 1.10 b | 1.00 b | 1.10 b | .... |
| Horn Silver, Utah | 3.25 b | 3.25 b | 3.25 b | 3.25 b | .... |
| Malad Con., Id. | 02¼ b | .02¼ b | .01¼ b | .02¼ a | 7,200 |
| Mammoth, Utah. | 3.75 b | 3 75 b | 3.70 b | 3.75 b | .... |
| Northern Spy | 3.50 b | 3 50 b | 3.25 b | 3.25 b | 100 |
| Ontario, Utah | 46.00 b | 46.00 b | 46.00 b | 46.00 b | .... |
| Stanley | .18 b | .18 b | .17 b | .17 b | .... |
| Utah L. & C. Co. | 8.50 b | 8.50 b | 8.00 b | 8.50 b | 50 |
| Utah Oil Co., Utah | .11 b | .14b | .09 b | .13 b | 2,300 |
| Woodside, Utah. | 3.00 b | 3.00 b | 3.00 b | 3.00 b | .... |
| Total | | | | | 49,350 |

b bid. * buyer 30 days.

### Black Hills Stocks.

| | Deadwood, Oct. 22. Bid. | Asked. |
|---|---|---|
| Iron Hill | 40 | 42 |
| Golden Reward | 32 | 35 |
| Isadorah | 24 | 25 |
| Ruby Bell | 10 | 12 |
| Retriever | 14¼ | 15 |
| Tornado | 15 | 17 |
| Double Standard | 8½ | 9 |
| Ross Hannibal | 12 | 15 |
| Steward | 10 | 12 |

### Kansas City. Oct. 27.

| Company. | Opening. | H. | L. | Closing. | Sales. |
|---|---|---|---|---|---|
| Argonaut | 25 | 25 | 24¼ | 24¼† | 700 |
| Bates-Hunter | 44 | 44½ | 44 | 44½† | 4,900 |
| Big Six | 7½ | 9* | 7½ | 7½† | 3,800 |
| Cash Gold | 12½ | 12¾ | 12½ | 12¾† | 2,500 |
| Clay County | 90 | 90 | 90 | 90† | 200 |
| Diamond B | 4 | 4¾* | 4 | 3½† | 300 |
| Hard Money | 3 | 3½* | 3 | 3† | 3,300 |
| Hunki Dori | 6½ | 6½ | 6½ | 6½† | 200 |
| Iron Clad | 9½‖ | 9½‖ | 9½‖ | 7¼† | 360 |
| Kansas City M. & M. Co. | 2.65 | 2 67½ | 2.65 | 2 67½† | 40 |
| Kansas City, Col | 14 | 14½ | 14 | 14½† | 2,600 |
| Leavenworth | 63 | 63½ | 63 | 63 † | 1,000 |
| Little Nugget | 98 | 1.01* | 98 | 99† | 700 |
| Little Rule | 87† | .... | .... | 87† | .... |
| May Mazeppa | 1.00 | 1.04* | 1.00 | 99† | 1,400 |
| Minnequa Zinc M. Co. | 5 | 3 | 5 | 3½† | 20,700 |
| Monte Cristo | 3½† | .... | .... | 4† | .... |
| Morning Glim | 37½† | 38 | 38 | 38† | 100 |
| Pay Rock | 5† | .... | .... | 5† | .... |
| Pelican | 1‡ | .... | .... | .... | .... |
| Potosi | 9‖ | 9½‖ | 9‖ | 9‖† | 2,700 |
| Running Lode | 25 | 25‖ | 25 | 26† | 2,000 |
| Sylph | 25 | 30 | 25 | 30† | 900 |
| Total | | | | | 48,340 |

Pit sales.

†Bid. ‡Asked. * Buyer 30. § Seller 30. $* Seller 60 ‖ Buyer 60.

### PIPE LINE CERTIFICATES.

(Specially reported by Messrs. Watson & Gibson.)

The petroleum market this week has been lower, but inactive, as usual. The Ohio oil is almost unmarketable, the nominal price being about 18¼c. We think it is worth more than one quarter of the price of the Pennsylvania article, and therefore we advise the sale of the latter. It is now about 77c., and it ought to go to 65 or 70.

NEW YORK STOCK EXCHANGE.

| | Opening. | Highest. | Lowest. | Closing. | Sales. |
|---|---|---|---|---|---|
| Oct. 25 | 80 | 80 | 80 | 80 | 5,000 |
| 27 | 80 | 80 | 80 | 80 | 3,000 |
| 28 | 79 | 79 | 79 | 79 | 15,000 |
| 29 | 77¾ | 77¾ | 77¾ | 77¾ | 27,000 |
| 30 | 78 | 78 | 76 | 76 | 67,000 |
| 31 | 77 | 78¼ | 76½ | 78 | 52,000 |
| Total sales in barrels | | | | | 169,000 |

CONSOLIDATED STOCK AND PETROLEUM EXCHANGE.

| | Opening. | Highest. | Lowest. | Closing. | Sales. |
|---|---|---|---|---|---|
| Oct. 25 | 79⅞ | 79⅞ | 79¾ | 79¾ | 10,000 |
| 27 | 80 | 80⅛ | 79¾ | 79¾ | 5,000 |
| 28 | 79⅞ | 79⅝ | 78 | 78⅜ | 88,000 |
| 29 | 78⅝ | 78⅝ | 76 | 77⅜ | 33, 00 |
| 30 | 77 | 77⅜ | 77 | 77 | 52,000 |
| 31 | 76 | 78⅜ | 76 | 78⅜ | 90,000 |
| Total sales in barrels. | | | | | 278,000 |

## COAL TRADE REVIEW.

New York, Friday Evening, October 31.

### Statistics.

Statement of shipments of anthracite coal (approximated) for the week ending October 25th, 1890. compared with same period last year:

| Regions. | Oct. 25, 1890. | Oct. 26, 1889. | Difference. |
|---|---|---|---|
| Wyoming Region. Tons | 432,715 | 430,812 | Inc. 1,903 |
| Lehigh Region " | 141,268 | 135,774 | Inc. 5 494 |
| Schuylkill Region " | 274,328 | 243,221 | Inc. 31,107 |
| Total Tons | 848,311 | 809,807 | Inc. 38,504 |
| Total for year to date Tons | 28,384,951 | 28,710,326 | Dec. 355,375 |

Production of Bituminous Coal for week ending October 25th and year from January 1st:

EASTERN AND NORTHERN SHIPMENTS.

| | 1890. Week. | 1890. Year. | 1889. Year. |
|---|---|---|---|
| Phila. & Erie R.R. | 2,653 | 108.991 | 67,982 |
| Cumberland, Md. | *82,741 | 3,135,148 | 2,489.451 |
| Barclay, Pa. | *3,465 | 125.597 | 96.764 |
| Broad Top, Pa. | 10,640 | 4 8.783 | 276,0e2 |
| Clearfield, Pa. | 75,889 | 3,048,725 | 293 659 |
| Allegheny, Pa. | 21,271 | 1,037,601 | 655.067 |
| Beach Creek, Pa. | ‡37,586 | 1.535,176 | 1,257.589 |
| Pocahontas Flat Top | 31,785 | 1,535.781 | 1,401.288 |
| Kanawha, W. Va. | *46,271 | 1,697,347 | 1,481,990 |
| Total | 312,299 | 12,643,149 | 7,919,842 |

* Estimated

‡ Week ending October 22d.

WESTERN SHIPMENTS.

| | | | |
|---|---|---|---|
| Pittsburg, Pa. | 17,503 | 670,794 | 533,663 |
| Westmoreland, Pa. | 25,112 | 927.642 | 1,224,582 |
| Monongahela, Pa. | 14,316 | 430,695 | 322.739 |
| Total | 56.961 | 2,029.131 | 2,080,954 |
| Grand Total | 369,260 | 14.672,280 | 10,000,796 |

Production of Coke on line of Pennsylvania R. R. for the week ending October 25th, and year from January 1st, in tons of 2,000 lbs.: Week, 106,793 tons; year 4,346,653 tons; to corresponding date in 1889, 3,572,253.

### Anthracite.

The month of October closed a great disappointment to the hard coal trade. There was a rush to buy coal, but all concerned knew perfectly well what was its true value. It was the last despairing effort of those who have been expecting a slump in the market because of the absence of fall snap in business. That trade is dull, no one pretends to deny; that the market is fairly firm is equally undeniable. During the last few days of the month would-be buyers were tumbling over each other to get at coal at September prices. But the holders, with some few exceptions, were firm in their views, and the rush was nipped in the bud. Some coal was sold at the lower prices, but only about twenty-five per cent. of the offers were accepted. Despite what is said in certain quarters, the supply of hard coal is not large.

With a good cold winter and the maintenance of existing labor conditions, a famine is quite as likely as a glut. True, the retail coal yards are rather more full than those interested in hard coal would choose. But a good cold spell will soon deplete them, and bring the question down to one of supplying the demand. Were the mines being worked up to the full capacity this might not be the case. But the truth is, as we have stated before, that the operators could not supply a much larger output than the present, because of the scarcity of experienced and qualified miners.

The sales agents met on the 28th inst. and compared notes. They were not enthusiastic, but they were hopeful. They fixed the output for November at 3,250,000 tons and increased the price of egg and stove ten cents a ton, which makes the average price considerably lower than that of last year. There is an assured feeling now that the output for the year will be a little short of 36,000,000 tons. According to the official figures, however, the total will be 35,216,180 tons. But that total is based on the output for November and December being kept down to agreed figures, which has never been done. Last year's output was 35,407,708, which by comparison shows that the course of the sales agents has been a conservative one this year. This accounts for the firmness of the market. Outsiders get scared at trifles; but those who take a comprehensive view are satisfied with the prospects for 1890. As soon as the summer closed with low prices reigning no one who understood the market expected great things for the year.

During the week broken and chestnut were decidedly slow, and egg and stove fairly active. Pea and buckwheat are more plentiful than they were, but maintain their figures. The prices agreed upon by the sales agents for the month of November are: Stove, $4.40; egg, $4.10; broken, $3.75; chestnut, $3.95; buckwheat, Lehigh, $1.60; free-burning, $1.75@$1.85 on board; pea, $2.25; free burning, $2.50@$2.75 on board.

### Bituminous.

Soft coal is scarce and the market is tight. Prices are now firmer, though really no higher than they have been. Nominally they are about 6 or 7 per cent. higher than we quote, but this is due to the fact that many of the operators are oversold, and one or two of the largest greatly so. They are so short of coal that they can only with the greatest difficulty carry out existing contracts. When they are approached for new business they quote an artificial price because they cannot fill new orders.

The whole soft coal trade is working fully up to the notch. Some qualities, which have been much advertised, have given out, and other qualities are said to have been supplied in their stead.

The scarcity of grain for Eastward freights results in a call for soft coal as cheap freights, which accounts for some of the alleged exportations of coal to England. But as the price of Cardiff coal is going up almost daily, the exportation of American bituminous coal to England and the continent may become a feature of this market if freights are sufficiently low. There is such a demand for Eastward freights now that American coal can be carried at a figure which may place it in Europe at a price which will compete with European coal prices if they increase a trifle more.

The main cause of the scarcity of bituminous in this market continues to be the lack of cars. Operators cannot depend on shipping any quantity hitherward on time. Vessels are plenty and freights easy, but not lower. From Baltimore to Boston is now 90 cents, from Philadelphia 85 cents and from New York 55 cents. The prices we quote obtain now, but there is a tacit understanding that they will be increased all round before November closes. At Baltimore, $2.40 f. o. b.; at Philadelphia, $2.50; at New York, 3.15; alongside, $3.40.

### Boston. Oct. 30.

(From our Special Correspondent.)

The anthracite market continues to pursue a uniform course, the tone being exceedingly quiet. Agents do not seem to be inclined to look for new business. It now looks as if some of them will not be able to properly attend to what they have on hand. Coal is arriving very slowly and necessarily is going to make up old orders. Stocks at tide-water are reported to be fairly large. Some sizes are not very plentiful, but on the whole there is ample coal to meet all present requirements. Prices rule firm, with an exceptional sale under circular prices made by individual operators. The advance of 10 cents on stove and egg, which is to go into effect November 1st, was received quietly in the market.

Bituminous coal presents a very firm tone. There is only a small demand for it, and but few dealers are in a position to take even this small business. The receipts continue light and arrivals are going to old customers. Some agents have moderate stocks on hand, which they appear to be reserving for an emergency. Gas coal is in good demand at top quotations. On the cars the price is firm at $3.65@$3.75.

Freights have commenced to stiffen up and much better prices are being realized. As prophesied, the first storm worked a change. Now that rates have commenced an upward course many are inclined to believe that they will reach a much higher figure. At New York they are quoted at 65@70c.; from Philadelphia 85 cents rules, but several small vessel have been engaged at 95 cents. Baltimore is commanding $1@$1.10, the bulk of the charters being made at the top quotation.

The retail trade is active at ruling prices. All of the dealers are well stocked and in a position to meet the good demand. The market tone is firm, and the appearance of cold weather is helping it along in good shape. The efforts to advance prices have so far proved futile, but a continuance of the present good feeling will warrant a 25 cent advance as advocated. The coal exchange prices rule and no cutting is being done. The outlook is promising.

### Buffalo. Oct. 30.

(From our Special Correspondent.)

The anthracite coal trade, quiet. An advance of 25c. per ton, wholesale and retail, will be made on Saturday next, November 1st. Stormy and cold weather has commenced, and, as coal is necessary, small orders are quite plentiful. But a limited demand is manifested from out-of-town places; whether the raise in quotations will improve trade is doubtful, although it is likely that no further advance will be made.

Bituminous coal in good request and quotations firm.

Cars a shade more plenty, but still inadequate for trade requirements.

The large consumption of bituminous coal in Buffalo is illustrative of its rapid growth, which is without a precedent in its history. This business prosperity is largely due to the manufacturing enterprises that have been started in consequence of the increased railroad facilities, giving the advantage of cheap fuel to the citizens.

A local newspaper printed the following yesterday: "There is now no doubt that there will be a big shortage of coal at the head of Lake Superior and a scant supply at Chicago, Milwaukee, and other lake ports at the close of navigation. This is especially true of bituminous coal. Soft coal cannot now be bought by lake shippers at any price. The aim among shippers at present is simply to fulfill contracts made last spring, and some of them will not succeed even in this. The Lake Superior trade will suffer most. Railway companies in the Pittsburg district have failed to furnish cars, and have made extra demands upon the mines for their own supplies on account of increasing general traffic. Miners have turned attention to manufactories in and around Pittsburg, and the supply of labor has been short. These, with other causes, have restricted the lake output until now there is no hope of reaching the aggregate of shipments anticipated last spring. Prices have stiffened and the figures demanded by the miners have been in many cases much higher than on early sales. Milwaukee's receipts of hard coal to October 1st are 82,666 tons short of the previous year, to say nothing of a natural increase in business, which should be 60,000." There is more than a grain of truth in this statement.

The shortage of cars has an important bearing upon the coke outlook, both as regards supply prices and consumption; it is said that many iron furnaces will be compelled to close in consequence.

At this port the lake movement in coal is lighter than it would be if there was enough anthracite on hand or arriving for the vessels awaiting up cargoes, and the result is that a number of crafts leave daily to seek tonnage elsewhere. Rates of freight unchanged. The shipments by lake from this port from October 23d to 29th, both days inclusive, 74,050 net tons were distributed about as follows: 29,350 to Chicago, 13,800 to Milwaukee, 11,950 to Duluth, 3,850 to Toledo, 7,300 to Superior, 450 to Bay City, 1,300 to Manitowoc, 2,550 to Marquette, 1,800 to Detroit, 200 to Alpena, 1,500 to Green Bay. Total thus far this season, 1,746,790 net tons. The rates of freight were 60c. to Chicago, 50c. to Milwaukee, 70c. to Racine, 50c. to Green Bay and Alpena, 25c. to Bay City, 40c. to Marquette, and 30c. to Duluth, Toledo, Detroit, and Superior. Closing quiet and steady. The advent of November betokens the closing of navigation for the season of 1890, and, as a shipowner says, "with a bad flattening out of rates of freight."

The coal cargo of the burned Annie Young is to be raised and delivered at Port Huron docks by the contractor.

At a meeting of the Buffalo Freight Committee, held yesterday, westbound rates on anthracite coal were advanced 25 cents, the basis being the same as last winter. The schedule to the chief points of shipment is as follows, and will take effect on November 17th: Chicago, $2; East St. Louis, $2.50; Cincinnati, $1.75; Indianapolis, $1.85; Detroit, $1.10; Toledo, $1.10; Saginaw, $1.70; Peoria. $2.35, and Milwaukee, $2.40 per net ton.

### Chicago. Oct. 29.

(From our Special Correspondent.)

A fair degree of steadiness is reported in the Chicago coal market, also the old complaint, scarcity of cars. Improvement in the anthracite trade, looked for by some, has not materialized. October business is hardly up to expectations. There was some talk about advancing rates Nov. 1; the foundation upon which to base an advance is none too solid. Retail figures remain: large egg, $6.25; small egg, range and chestnut, $6.50, on cars f. o. b. Chicago per net ton; large egg, $5.40; small egg, range and chestnut, $5.65; Lehigh lump, $7.

The bituminous trade is unusually good. The great industrial activity has brought about a very heavy demand; the feeling among operators has not been so cheerful for months. Quotations per ton of 2,000 pounds are: Erie, $4.25; Pittsburg, $3.30; Indiana block, $2.50; Blossburg, $4.00; Greene and Sullivan County (Ind.), shaft, $2.25@$2.40; Jackson Hill, $3.25@$3.40; Jackson shaft, $3.35@$3.45; Hocking Valley, $3.30; Youghiogheny gas, $3.50.

For coke the demand is also good, prices firm, and trade would be satisfactory in every way were it not for the difficulty of transportation caused by the long-continued car famine. Prices are: For Connellsville 72-hour, $5.20; domestic crushed, $4@4.25; Elk Lick, $4.40 per ton of 2,000 pounds f. o. b. Chicago.

### Pittsburg. Oct. 30.

(From our Special Correspondent.)

**Coal.**—Market firm with an increased demand. The late action of the gas companies will be apt to increase the cost of coal to consumers, as many of the furnaces that have been using gas will return to coal. There has been plenty of water in the Ohio for boating purposes.

The amount of coal that has been sent out was small, being 1,844,000 bushels. Present rates are, in the pools:

| Per 100 bushels. | | Per 100 bushels. |
|---|---|---|
| 1st pool.....$4.75 | 3d pool..... | $3.90 |
| 2d pool..... 4.50 | 4th pool ... .... ... | 3.25 |

Railroad coal, $5.00@$5.50.

**Connellsville Coke.**—The situation shows no improvement so far as the car famine is concerned; unless the supply increases production will soon be restricted. The furnace men are still asking for cheaper coke. Stocks in the region are rapidly increasing; last week's record was the worst yet, the capacity of the region being 165,000 tons per week; car capacity 125,000. This condition of affairs can not hold out much longer. Shipments last week, 6,373 cars; previous week, 6,770; falling off of 387 cars. Total ovens in the region, 15,764; active, 13,988; idle, 1,814.

The rates were for 2,000 pounds f. o. b. cars at ovens: Blast furnace coke, $2.15; foundry coke, $2.45; crushed coke, $2.65.

**Freights** to Pittsburg 70c. per ton; Mahoning and Shenango Valleys, $1.35; St. Louis, $3.35; Cleveland, $1.70; Chicago, $2.75.

### FREIGHTS.

**From Philadelphia to:** Alexandria, †.85; Boston, .75@.90; Charleston, .70; Fall River, .90; Gardiner, 95; Galveston, 2.70@2.75; Jacksonville, 1,00; Lynn, 1.00; New Bedford, .75; Newburyport, .75; New York, †.90; Portsmouth, .85; Washington, †.85.

*And discharging. †Alongside.

## METAL MARKET.

NEW YORK, Friday Evening, Oct. 31.

**Prices of silver per ounce troy.**

| Oct. | Sterling Exch'ge. | Lond'n Pence. | N. Y. Cts. | Oct. | Sterling Exch'ge. | Lond'n Pence. | N. Y. Cts. |
|---|---|---|---|---|---|---|---|
| 25 | 4.86 | 48⅛ | 1.04⅛ to 1.03 | 29 | 4.85¼ | 49⅛ | 1.06½ |
| 27 | 4.86 | 48¼ | 1.04 to 1.04½ | 30 | 4.85 | 48⅝ | 1.06 |
| 28 | 4.85½ | 48⅜ | 1.06 | 31 | 4.85 | 48½ | 1.05½ |

Temporary absence of a demand for India, and the completion of the United States government's quota before the end of the month, have occasioned the depression of silver for the last 10 days.

The United States Assay office at New York reports total receipts of silver for the week to be 165,000 ounces.

### Silver Bullion Certificates.

NEW YORK STOCK EXCHANGE.

| | Price. H. | Price. L. | Sales. |
|---|---|---|---|
| Oct. 25 | 105¼ | 103 | 255,000 |
| Oct. 27 | 105½ | 104⅛ | 428,000 |
| Oct. 28 | 107⅜ | 106 | 168,000 |
| Oct. 29 | 107 | 106⅜ | 157,000 |
| Oct. 30 | 106¾ | 105½ | 60,000 |
| Oct. 31 | 105¾ | 105½ | 22,000 |
| Total sales | | | 1,090,000 |

### Foreign Bank Statement.

The governors of the Bank of England at their weekly meeting on Thursday made no change in its rate for discount, and it remains at 5 per cent. During the week the bank lost £158,000 bullion, but the proportion of its reserve to its liabilities was raised from 34·90 to 35·30 per cent., against a decline from 38·41 to 40·74 per cent. in the same week last year, when its rate for discount was 5 per cent. The weekly statement of the Bank of France shows a loss of 7,600,000 frs. gold and a gain of 1,375,000 frs. silver against for the same week of last year a loss of 2,750,000 frs. gold and a gain of 475,000 frs. silver.

### Domestic and Foreign Coin.

The following are the latest market quotations for American and other coin:

| | Bid. | Asked |
|---|---|---|
| Trade dollars | $ .80 | $ .82 |
| Mexican dollars | .82 | .84 |
| Peruvian soles and Chilian pesos | .75 | .78 |
| English silver | 4.80 | 4.84 |
| Five francs | .94 | .95 |
| Victoria sovereigns | 4.84 | 4.93 |
| Twenty francs | 3.86 | 3.90 |
| Twenty marks | 4.74 | 4.78 |
| Spanish doubloons | 15.55 | 15.70 |
| Spanish 25 pesetas | 4.80 | 4.85 |
| Mexican doubloons | 15.55 | 15.70 |
| Mexican 20 pesos | 19.50 | 19.60 |
| Ten guilders | 3.96 | 4.00 |
| Bar silver | 1.05½ | 1.06½ |

**Copper.**—The uneasy feeling which has prevailed for some weeks past was marked during the current week, and more and more is the belief gaining strength that the price of 17 cents for Lake copper cannot be upheld very long. We have not so far heard that the Lake companies have given way, but on the contrary are assured that all of them are holding out for that price, and it now remains to be seen whether the manufacturers who have been holding back for weeks will have to go to the Lake companies, or vice versa. Intrinsically the situation of copper has not changed at all.

Stocks are slowly diminishing, consumption is good, but there is a certain feeling of distrust in all markets which is more or less connected with the stiff money market and the unsettled state of affairs on the Stock Exchange.

A few more second-hand parcels of Lake copper have changed hands at 16¾, but these transactions are quite insignificant. An important fact came to light just after we last went to press, namely, that a combination has been formed by all the principal Eastern manufacturers and representatives of the Western producers, by which the price of Arizona copper was fixed at 15¼ cents and casting copper at 14½@14¾ cents. We understand that these prices went into effect at once, and although early in the week a few transactions took place at slightly lower figures, nothing can since be had below these prices. It now remains to be seen if the stipulations of this agreement will be faithfully carried out, about which some doubt seems to exist in the trade.

The foreign markets have been fluctuating rather widely during the week, and we hear that there is little or no disposition to buy furnace material at present, as smelters are still well stocked, and sulphate of copper, contrary to expectations, remains more or less, up to the present, a "dead letter." Still our advices continue to report consumption of manufactured copper and specially copper wire going on at a very fair rate. Chili bars opened this week at £58, afterward reached £59, and closes to-day at £58 5s.@£58 7s. 6d. spot and £58 10s.@£58 15s. three months.

We quote tough at £63@£64, best selected £66@£66 10s., strong sheets £70@£71, India sheets £67@£67 10s., and yellow metal sheets 6¼@½d.

The exports of copper during the past week were as follows:

| | | | |
|---|---|---|---|
| To Liverpool— | Copper matte. | Lbs. | |
| S. S. City of Berlin | 3,391 bags | 361,786 | $35,000 |
| To Hamburg— | Copper matte. | Lbs. | |
| S. S. Torgorm | 2,256 bags | 243,751 | 20,000 |

**Tin.**—A considerable business has been done during the week, and, contrary to expectations, the heavy arrivals of the last eight or ten days have hardly influenced the market at all. The large deliveries which continue show that consumption is still good, and that consumers are, so to speak, living from hand to mouth. The week opened very strong, but upon a decline in London prices gave way slightly, and we quote spot 21·45, November 21·50, December 21·50, January 21·50.

In London spot tin is commanding a rather high premium and the market is still somewhat above the parity of ours in spite of a decline of about £1 5s. during the week, spot having opened at £99 and is obtainable to-day at £97 15s.@£98, three months being quoted at £96 5s.

**Lead.**—Only a few transactions can be recorded as heavy arrivals are expected next week, and in the interval consumers have been limiting their purchases to their barest wants. The few lots sold changed hands at 5·75 or thereabouts, but for delivery next week not more than 5·50 is obtainable, and the probability is that before long prices will decline to the importation point, namely, 5·35 to 40c. At that level, as consumers are almost without supplies, a very fair business may be expected. It looks as if we would still have to depend on Europe for supplies for some time to come, as we hear of no lead being shipped from the West to Eastern ports.

The market in London went up fully five shillings early in the week, and we hear that near delivery lead is almost unobtainable, as nearly all the reserves of lead have been shipped to this country, and consumers over there are now also dependent on present production. The shipments from Australia are reported to have fallen off considerably of late, and amounted in October to only 400 tons, against an average of 2,500 tons monthly, which is an important decrease. We quote Spanish lead £14 10s.; English, £14 15s.

*Chicago Lead Market.*—Messrs. Everett & Post telegraph us as follows: "The market is weaker on account of resales by consumers. Spot lead is 5·35c., and 5·25c. is asked for futures.

*St. Louis Lead Market.*—Messrs. John Wahl & Co. telegraph us as follows: "Lead continues on the down grade and has a weak and unsettled undercurrent. Lead for spot delivery is selling lightly at 5c., and for November at 4·92½c.

**Spelter.**—The scarcity in this market is rather pronounced. We have to quote 6·10-15c.

**Antimony** has been pressed somewhat for sale, and quotations are lower. We quote Cookson's 21¼-½c., LX 18¾-19c., and Halletts 18¼-½c.

**Quicksilver.**—The market for this metal is quiet and not much business was done during the week. Quotations are, for London, £10, and for New York, $56@$57.

## IRON MARKET REVIEW.

NEW YORK, Friday Evening, Oct. 31.

**American Pig Iron.**—The market for pig iron is essentially the same as last week; in fact, the same as it has been for at least four weeks. The main features are unchanged; the scarcity for the higher grades continues, the other grades are in fair demand, and altogether the consumption is at least equal to the production. It is a rather strange fact that although consumers apparently realize that prices have about reached bottom, they show little inclination to buy heavily, hence the trading has been of a hand-to-mouth nature. In spite of this the orders aggregate a large quantity, and were it not for the prices paid, furnaces would have nothing of which to complain. Quotations remain as last week: Northern iron, No. 1 X, $17.50@$18; No. 2 X, $16.50@$17. Southern, No. 1 X, $16.50@$17.50, and No. 2 X, $15.50@$16.50.

**Scotch Pig Iron.**—We hear of no sales of Scotch iron during the week. The strike in Scotland remains as last reported, and according to latest accounts it bids fair to be protracted indefinitely. The men, it will be remembered, struck for higher wages and shorter hours. Now the bosses say that they will not take the men back unless they come back at lower wages. We quote, nominally: No. 1 Coltness, $24.50; Dalmellington, $22; Eglinton, $21.25.

**Spiegeleisen and Ferro-manganese.**—The depression in the steel market makes itself felt in both spiegel and ferro, which are dull and featureless. We can do little more than to repeat our last week's quotations, which are: 20 per cent. spiegeleisen, $30.50@$31 for German, and $31@$31.50 for English. For 80 per cent. ferro-manganese we quote $69@$70 for future delivery.

**Steel Rails.**—This market continues weak and dull. The "association," which met on the 22d, adjourned without having taken any definite action. We hear of several sales this week, not one of which took place at higher figures than $29. One sale of 3,000 tons to the South Carolina Railroad, delivered at Charleston, for $31 is reported.

**Rail Fastenings.**—There naturally can be nothing doing in fastenings, while rails are as depressed as they are at present. We quote this week: Spikes, 1·95@2c.; angle plates, 1·72@1·76c.; bolts and square nuts, 2·70c.; hexagonal nuts, 2·90@2·95c.; complete joint, iron and steel, according to weight.

**Tubes and Pipe.**—A good business is reported, and an excellent demand for the various sizes. Quotations are undisturbed. Ruling discounts on car lots: 47½ per cent. on butt, black; 40 on galvanized; 60 on lap, black, and 47½ on lap, galvanized; 45 on 1¾-inch boilers; 50 for 2 inches and larger. Casing, all sizes, 50 per cent.

**Structural Iron and Steel.**—There is a good amount of roof and bridge work, and altogether this market is in a healthy condition. Quotations are: Universal plates, 2·30c.; bridge plates, 2·30c.; angles, 2·10@2·20c.; tees, 2·65c.; beams, 3·10c.

**Merchant Steel.**—This market is in fair condition, business being rather good, although prices are no higher. We quote this week: Best English tool steel, 15c. net; American tool steel, 7½@10c.; special grades, 13@20c.; crucible machinery steel, 5c.; crucible spring, 3¾c.; open-hearth machinery, 2·60c.; open-hearth spring, 2·60c.; tire steel, 2·60c.; toe calks, 2·60c.; flat file, 4¾c.; mill file, 5¼c.; taper file, 7¼c.; first quality sheet, 10c.; second quality sheet, 8c.

**Old Rails.**—We hear of little trading in old rails, there being scarcely any inquiry. Holders are still inclined to ask a price somewhat higher than buyers are willing to pay. Holders' quotations are $26 for tees and $27 for doubles.

### Chicago. Oct. 29th

(From our Special Correspondent.)

The Chicago iron market is reported stronger than it has been for some time past. Demand for crude material continues on the increase, and the volume of tonnage moving is generally satisfactory to dealers. The improvement is distributed among the trade in all classes, and the amount of business transacted last week was fully up to the heavy average set by preceding weeks. However, in face of the immense output advanced quotations cannot be looked for. Unprecedented consumption is apparently overmatched by unprecedented production. Demand for all the various finished products continues so large that the capacity of the mills seems to be strained to their utmost.

**Pig Iron.**—Southern furnaces are reported well sold up for this year. Cokes, both Northern and Southern, are selling well in fair quantities. Demand and inquiry are fully as active as last week. Consumption in all lines is on the increase, and many consumers are very seriously impeded in their work by the wretched car service which has so long existed. Decreasing stocks at furnaces point to a steady market for the near future. Some improvement is noticed in Lake Superior charcoals, but a larger demand is expected during November and December, prices for which are fairly steady as quoted.

We quote to-day for cash per ton of 2,240 pounds, f. o. b. Chicago, for Nos. 1 and 2, Lake Superior charcoal No. 3, for car wheels, Nos. 4 and 5 for malleable, $20.50@$21; Lake Superior coke, Bessemer, $18.50; Lake Superior coke, Bay View No. 1, $17@$17.50; No. 2, $16@$17; No. 3, $15.50@$16; Southern coke No. 1, $16.50@$17; No. 2, $16@$16.50; No. 3, $15.50@$16; Southern charcoal, $19@$19.50; standard Southern car wheel, $22@$24.50; Ohio softeners, Hanging Rock, $18@$18.50; Jackson County, $18.50@$19; Hanging Rock, cold blast, $26@$28; warm blast, $23@$25; No. 1 Scotch, according to brands, $26@$27; American Scotch, $19@$20; Bay View Scotch No. 1, $18; No. 2, $17; Chicago Scotch No. 1, $17; No. 2, $16; Emma Scotch, $19@$19.50; black band, Hubbard Scotch, $19; Haselton, $19; soft silvery, $18; Wellston No. 1, $19; No. 2, $18.50@$19; Hamilton No. 1, $19.25@$19.75; Norton No. 1, $17.75@$18.25; Zanesville No. 1, $18.75@$19.25.

**Structural Iron.**—A heavy business is being done, and inquiry continues good for iron and steel for bridge work and large buildings. Prices are steady. For car lots, f.o.b. Chicago, iron and steel angles, $2.35@$2.40; Universal plates, $2.35; sheared plates, $2.50; tees, $2.75@$2.85; beams and channels, $3.20. Store prices are: Angles, $2.50@$2.60; tees, $2.90@$2.95, and beams and channels, $3.50@$3.70.

**Bar Iron.**—Some car iron orders are on the market for early delivery. Certain mills are apparently not anxious to take them up at present figures, especially in their present crowded condition, while others are anxious for new business and are bidding for it to an extent that causes some weakness in prices. We quote $1.85@$1.90 for half extres f. o. b. Chicago; Valley mills $1.72½@$1.65; for half extras at mill, dealers are selling at $2.@$2.20 according to the usual conditions.

**Black Sheet Iron.**—Demand is reported as falling off somewhat at the advanced prices. Mills quote $3.15 for No. 27 common f.o.b. Chicago; dealers report trade active at $3.20 for No. 24, $3.30 for Nos. 25 and 26, and $3.40 for No. 27.

**Galvanized Sheet Iron** continues in fair request, and stocks at warehouses are becoming depleted. Advanced prices may be looked for on account of scarcity and of the advancing price of spelter. Quotations are, for both cheap and standard brands, 60 per cent. discount on Juniata, 60 and 5 per cent. on charcoal from store; jobbing lots are quoted according to quantity ordered.

**Merchant Steel.**—The demand is fair for merchant steel and moderate for tool and specials. We quote as follows: Tool steel, $7.75@$8; specials, $12@$25; open-hearth machinery, $3; Bessemer machinery, $2.50@$2.70; open-hearth spring steel, $2.75@$2.80; tire, $2.50@$2.60; toe calk, $2.70@$2.80; sleigh shoe, $2.40@$2.50; cutter shoe (T. & B.), $2.65@$2.70; crucible sheet steel, $7@$10; crucible spring, $3.75.

**Plates, Tubes, etc.**—Store trade is somewhat lighter than usual, but there is no change in the activity at mills. Prices are firm and unchanged. Tank iron, $2.70; tank steel, $2.90; heavy sheets from 10 to 14, $2.90@ $3; steel sheets 10 to 14, $3.25@$3.50; shell iron, $3@$3.25; flange iron, $4@$4.25; flange steel, $3.50; shell steel, $3.25; boiler rivets, $4@$4.25; fire box iron and steel, $4.75@$5.50; boiler tubes, 4½ inches and larger, 52½ per cent.; 2 to 4 inches, 50 per cent., and 1¾ inches and smaller, 45 per cent.

**Nails.**—Steel cut and wire nails continue in good demand, but prices are somewhat easier, with irregular quotations. We quote $1.85 for steel cut, f. o. b. mill, and $2 by car lots from stores here. For wire nails, $2.40@$2.45 f. o. b. mill, and $2.55 at stores in Chicago.

**Steel Rails.**—A better feeling is reported in this market, and the prospect is good for winter work. Several large inquiries are noticed for spring delivery. Small lots for prompt delivery have been placed at $33.50@$34.

**Railway Track Supplies.**—Demand is falling off somewhat, but it is still moderately fair. Prices are firm Iron fish plates, $2.15@$2.20; steel fish plates, $2.25@$2.30; bolts, square nuts, $3@$3.05; hexagon nuts, $3.10@3.15; spikes, $2.20 @$2.25, according to quantity.

**Scrap Iron.**—The scrap market is quiet, with a moderate demand for the higher grades of wrought. We quote as follows: Country mixed scrap, $15.50@$16.50, according to condition; No. 1 mill, $14@$14.50; light wrought, $9@ $9.50; horseshoes, $19@$19.50; axles, $26; cast machinery, $13@$14; stove plates, $9.50@$10; borings, $9.50@$10; wrought turnings, $13.50; No. 1 railroad shop or forge, $21.50; track scrap, $19.50@ $20.

**Old Wheels and Rails.**—Old iron rails are weaker and the demand light. Old steel rails are also quiet and prices easier; for the former $25@ $25.50 and for the latter $19@$20, according to length and condition, are quoted; old wheels remain quiet, at $18@$18.50.

### Cleveland. Oct. 30.

(From our Special Correspondent.)

There are no now features in the iron ore market. Inquiries for large and small lots continue to come in from the East, but few orders, however, can now be placed there, owing to the lateness of the season. The market from furnaces West of the Alleghenies is exceedingly dull; pig iron, both Bessemer and mill, being so low that none of the furnaces are inclined to make any further purchases at present. Most of them, in fact, have already bought nearly all the ore they will want until the opening of navigation next year.

The principal activity now in the iron ore offices is caused in their endeavoring to get the railroads to forward ore to the furnaces fast enough. These latter are now hurrying forward their ores, having with their usual shortsightedness waited until the close of the season, consequently there is a scarcity of cars, and it is almost impossible to ship the ore as fast as it is desired by the consumers.

Lake freights, contrary to the usual custom, have not advanced a point. Grain freights have indeed declined from both Lake Superior and Lake Michigan. Coal cargoes are hard to get, and whenever any ore boats are wanted they can readily be had for $1 from Lake Superior and 85c. from Lake Michigan.

We repeat last week's quotations:

*Specular and Magnetic Ores.*

| | | | |
|---|---|---|---|
| Bessemer, 67@69 per cent | | | $6 00 ... .. |
| " | 60@64 | " | 5.00@ 5.50 |
| Non " | 66@69 | " | 5.00@ 5.50 |
| " " | 62@65 | " | 4.50@ 5.25 |
| " " | 57@60 | " | 3.75@ 4.25 |

*Soft Hematites Dried at 212°.*

| | | | |
|---|---|---|---|
| Bessemer, 62@65 per cent | | | $4.75@ 5.25 |
| " | 58@61 | " | 4.25@ 4.75 |
| Non " | 55@63 | " | 3.50@ 4.25 |

Above prices are for deliveries on docks at Lake Erie ports.

### Louisville. Oct. 28.

[Special Report by Messrs. Hall Bros. & Co.]

Inquiry is more liberal than a week ago, some furnaces having advanced prices 25 and 50 cents a ton. Buyers are beginning to think of their wants for first six months of 1891. Many are short of supply, and, believing that prices have touched rock bottom, they are covering their wants quite freely at the best prices and deliveries they can, but it has cost them considerable by waiting too long. The furnaces do not seem anxious to sell, as they are comfortably booked for some time yet, and when they sell they want more money. Indications point to a sharp advance and an active market. While we cannot as a whole quote any advance over our last figures, yet, but for close money, speculation would be large as prices are low. We quote as last:

**Hot Blast Foundry Irons.**—Southern coke, No. 1, $15@$15.25; No. 2, $14.25@$14.50; No. 3, $14@ $14.25. Mahoning Valley, lake ore mixture, $17.75 @$18 75; Southern charcoal, No. 1, $17@$17.50; No. 2, $16.50@$17. Missouri charcoal, No 1, $18@ $18.50; No. 2, $17@$17.50.

**Forge Irons.**—Neutral coke, $13.75@$14; cold short, $13.75@$14; mottled, $12.75@$13.25.

**Car Wheel and Malleable Irons.**—Southern, standard brands, $22@$23; other brands, $18@ $19. Lake Superior, $22.50@$23.

### Philadelphia. Oct. 31.

(From our Special Correspondent.)

The heavy consumption of iron still continues. A few inferior brands have been disposed of at concessions. Southern iron has been offered at very attractive prices, so far as mere price is concerned, but very little has been taken. Less No 1 iron has been sold over $18 this week than usual. There is a little anxiety on the part of some large companies to capture some of the large foundry and forge iron contracts that buyers are inclined to place. Still there is not that earnestness in the market that is often seen. Both buyers and sellers seem a little uncertain as to whether to push sales on one side or to push purchases on the other. The natural and legitimate demand is very heavy. Standard foundry is bringing $18. No. 2 is selling at $16.50 to $17. Grey forge is worth about $15, although there are some variations from this figure. Bessemer is still quoted at $18.

**Foreign Material.**—Spiegel is quoted at $31.50. Ferro-Manganese at $68.50.

**Muck Bars.**—A heavy demand is keeping mills full of orders, and $30 is being paid for good makes. The outlook is very bright.

**Steel Billets.**—Steel billets are quoted at $30.50 @$31. Several offers have been made at from 50 cents to $1 less. Manufacturers are not accepting these low offers. The probabilities are that the heavy consumptive demand will force buyers into the market and that the terms of manufacturers will be accepted. Nail slabs are quoted at $30.

**Merchant Iron.**—A large amount of merchant iron is selling at 1·85@1·95. Medium iron is selling a tenth less. Mill men and brokers all say the demand is improving, especially in small orders.

**Nails.**—Nails are in fair demand and more harmony is now looked for as the result of recent understandings. This is what is given out, but there is evidently a feeling that some parties will continue to cut prices as they have done. Nails are still selling at $1.80@$2.

**Skelp Iron.**—Grooved skelp is 2c., and sheared, for prompt delivery, has sold this week at 2·25c.

**Wrought Iron Pipe.**—There is a very prosperous condition of trade, and prices are firm for all kinds of mill products. There is a great urgency for boiler tubes.

**Sheet Iron.**—The favorable trade conditions so often reported continue, and everything is moving along to the satisfaction of manufacturers.

**Plate and Tank Iron.**—All the favorable conditions continue and there is no difficulty in getting prices asked. Manufacturers are conservative in their views and quote down very closely on all specifications. Steel plate for ship work has been contracted for at 2·40; shell, 2·75. There is a steady run of business.

**Structural Material.**—Brokers here report fresh specifications for large supplies. Mills are full of business. Inquiries have been made for material for mid-winter delivery in expectation of concessions from ruling quotations, but they will not be extended. Angles are 2·25; plates, 2·45; tees, 2·70.

**Steel Rails.**—Only small lots of steel rails have been reported this week, and it is generally understood that large orders will be promptly accepted at $29 at mill, but it transpires that buyers expect to do better.

**Old Rails.**—Prices are nominally $25@$25.50.

**Scrap.**—Railroad is worth $23, and is hard to get. There is not much doing in any other kind.

### Pittsburg. Oct. 30.

(From our Special Correspondent.)

**Raw Iron and Steel.**—Another week has passed without developing any particular change in the position of the market; prices as a general thing are unsettled and irregular, in some instances showing a wide range in values for what seems to be the same kind of material, while the sales are in all cases furnished by responsible parties. Notwithstanding the unsettled condition of the market there is an immense business doing, nevertheless, and mills and furnaces in all directions appear to have all the orders booked they want; while some departments may not be overcrowded, others again are the reverse; all things taken into consideration, the outlook is more favorable than for some time past.

The stock of pig iron in the hands of consumers is not large. This fact places them under obligations to buy often in order to keep their works in operation. While prices of standard brands continue to hold their own, of one kind and another, there seems to be an increasing supply; hence, while there is little apparent weakness in established brands, consumers, in many cases, can obtain lots of unknown brands at less money. One cause for the unsettled condition of the market, and a very serious one, is the question of natural gas. The Philadelphia Gas Company has turned off the supply furnished to the puddling furnaces. In some cases the supply has not been entirely shut off. The cold weather is approaching, and the mill men have not had time to contract for coal. One of our largest mill men said he regarded going back to the use of coal as a calamity; he could not understand the actions of the gas company, and thought that perhaps it was simply feeling the public pulse in order to force up the price as far as all consumers, both mills and private, would stand. "The price of gas is now very high," he said, "and people cannot pay out everything they have simply for gas." Should the gas be shut off entirely from puddling furnaces, the extent of such a drawback can hardly be imagined. It is estimated that 500 furnaces will be affected.

Muck bar is very firm; prices have further advanced for later deliveries; sales large. Steel slabs and billets about hold their own. Manufactured iron was firm, with a good trade demand. The sales given following will inform the reader of the real situation.

*Coke Smelted Lake and Native Ores.*

| | |
|---|---|
| 3,000 Tons Bessemer, deliverable 500 tons per month | $17.80 cash. |
| 2,500 Tons Bessemer, Nov., Dec | 17.25 cash. |
| 1,500 Tons Grey Forge | 15.00 cash. |
| 1,000 Tons Bessemer, spot | 17.50 cash. |
| 1,000 Tons Mill Iron, all ore, Nov., Dec | 16 00 cash. |
| 1,000 Tons Bessemer, City furnace | 17.50 cash. |
| 1,000 Tons Grey Forge | 15 25 cash. |
| 1,000 Tons Bessemer | 17.00 cash. |
| 1,000 Tons Grey Forge, Oct., Nov | 15.00 cash. |
| 1,000 Tons Bessemer | 17.40 cash. |
| 1,000 Tons Bessemer | 17.25 cash. |
| 500 Tons No. 2 Foundry | 15.75 cash. |
| 500 Tons No. 1 Foundry, all ore | 18.00 cash. |
| 200 Tons No. 2 Foundry, all ore | 17.50 4 m. |
| 200 Tons No. 1 Foundry, all ore | 18.00 cash. |
| 150 Tons No. 2 Foundry, all ore | 16.80 cash. |
| 115 Tons No. 2 Foundry | 16.00 cash. |
| 100 Tons No. 1 Foundry | 17.80 4 m. |

*Charcoal.*

| | |
|---|---|
| 100 Tons No. 2 Foundry | 22.50 cash. |
| 100 Tons Cold Blast | 26.50 cash. |
| 75 Tons Cold Blast | 26.00 cash. |
| 50 Tons Warm Blast | 23.00 cash. |

*Muck Bar.*

| | |
|---|---|
| 4,000 Tons Neutral, November, December, January and February, at mill | 31.50 cash. |
| 2,500 Tons Neutral, November and December | 31.50 cash. |
| 2,000 Tons Neutral, January, February and March | 31 25 cash. |
| 1,500 Tons Neutral, first 4 months of 1891 | 31.40 cash. |
| 1,500 Tons Neutral, January to July | 31.25 cash. |
| 1,000 Tons Neutral, November, December and January | 32.00 cash. |

*Slabs and Billets.*

| | |
|---|---|
| 1,500 Tons Steel Billets, November and December | 29.00 cash. |
| 1,000 Tons Slabs and Billets | 28.75 cash. |
| 750 Tons Slabs and Billets | 28 50 cash. |
| 500 Tons Nail Slabs | 29.25 cash. |

*Ferro-Manganese.*

| | |
|---|---|
| 50 Tons 80 per cent., November, Batimore | 68.50 cash. |
| 50 Tons 80 per cent., Pittsburg | 72.00 cash. |

*Bloom Ends.*

| | |
|---|---|
| 500 Tons Bloom Ends | 21.00 cash. |
| 250 Tons Bloom Ends | 21.00 cash. |

*Skelp Iron.*

| | |
|---|---|
| 700 Tons Sheared Iron | 2.30 4 m. |
| 500 Tons Narrow Grooved | 1.90 4 m. |
| 300 Tons Wide Grooved | 1.95 4 m. |

*Old Iron and Steel Rails.*

| | |
|---|---|
| 650 Tons Old Steel Rails | 21.00 cash. |
| 500 Tons American T's | 27.75 cash. |

*Scrap Material.*

| | |
|---|---|
| 500 Tons Iron Axles, Nov | net 30.25 cash |
| 250 Tons No. 1 Wrought Scrap | net 23.25 cash. |
| 200 Tons Iron Axles | net 29.00 cash. |
| 200 Tons Iron Axles | net 29.50 cash. |
| 200 Tons Leaf Steel | net 23. 0 cash. |
| 200 Tons No. 1 Wrought Scrap | net 23.00 cash. |

## CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, Oct. 31.

**Heavy Chemicals.**—Nearly all the articles included under this name are in request.

Caustic soda, 60 per cent., is scarce, and quoted at 3·40@3·60c.; 74–76 per cent., at 3@3·20c., and 77 per cent. at 3@3·10c.

Carbonated soda ash, 48 per cent., continues in limited supply for prompt delivery. Quotations are 1·50@1·60c.

Caustic soda ash is also very scarce for spot delivery. We quote 1·50@1·57½, according to quantity and time of delivery.

Sal soda shows improvement, and a firmer market prevails. Sales have occurred at prices ranging from 1·10c. to 1·17½c., according to quantity.

Bleaching powder is held at 1·60@1·65c., according to brand. The spot supply has been considerably reduced, and holders are firm in their views.

**Acids.**—The market continues in about the condition reported for some time past. The demand has been quite good, with prices as they have ruled for some months; that is, low. An incident of interest to the trade was the receipt by the different acid makers of a letter from a well known Philadelphia firm. We give the full text: "Would not a little harmony of action among the leading acid makers secure from the smallest buyers of oil of vitriol better prices, or, at least, prevent their quotations from being based upon those made to large consumers, as now appears to be the tendency?

"All carboy trade, at least, ought to pay remunerative prices, and it seems to us that a meeting of the principal acid manufacturers would be the means of devising a plan, if not for the bettering of the business, for preventing its rapidly going into a worse condition. Would you be willing to attend a meeting in the near future if called, say, at New York City? We are told that some of the most prominent acid makers there, who now feel the necessity of quoting very low figures under present conditions, favor some sort of an understanding among the makers."

That is *verbatim* the letter which has been the one topic of discussion during the week. The source of the missive, as previously stated, is a Philadelphia firm which is not much of a factor in the market of the New York makers. It has been said that our local manufacturers were encroaching upon the territory which the Philadelphia house had come to regard as its own.

Of course, various motives have been ascribed to the writers of the letter, it being rumored among other things that some member of the Knickerbocker Chemical Company suggested the issue of such a letter as a "feeler," so to speak, to determine in what spirit outside makers would hail a movement toward reconciliation. The "combination" denies that it, officially, suggested any such attempt. It seems entirely probable that the letter is the result of a hint from

some one of our makers. The acid market really needs some improvement, but, after all, it is not *in extremis*. A majority of the acid makers, interviewed by a representative of the ENGINEERING AND MINING JOURNAL, expressed themselves as being entirely indifferent to the situation, and stated that they put no faith in the meeting suggested. Some "outsiders" said that they would attend no meeting at which the Knickerbocker Chemical Company was present as a body, although they would meet the individual members in their capacity of acid makers. Others said they did not see the benefits to be derived from such a meeting, adding, moreover, that they were unwilling to make any agreement or to take any steps toward the organization of anything savoring of a combination.

Altogether the much-talked-of letter has produced no beneficial effect on the market or on the minds of the various makers. Indeed, there is no reason why it should have done so. It offered no practicable means of improving the market.

We feel confident that the situation will solve itself before very long. In what manner or by what means it is difficult, if not impossible, to say, but it is safe to assert that a natural solution will present itself. Perhaps it will be by some of the manufacturers shutting down. This, at any rate, appears imminent. We quote this week: Acid, per 100 pounds in New York and vicinity: Acetic, $1.72½@$2.20; muriatic, 18-degree, 90c@$1.20; muriatic, 20-degree, 95c.@$1.50; muriatic, 22-degree, $1@$1.75; nitric, 36-degree, $3@$3.25; nitric, 40-degree, $3.50@$4.50; nitric, 42-degree, $4@$4.75; sulphuric, 60-degree, 70@80c., and sulphuric, 66-degree, 80@95c.

**Fertilizing Chemicals.**—While prices on the whole show but little, if any, improvement, the market for fertilizers is better. There have been some small sales of the various chemicals, and there is a fair demand, for quick delivery. Our quotations this week are: High grade dried blood, $1.80@$1.85. For the low grade the price is $1.70@$1.75. Azotine, $1.85@$1.90. Tankage, high grade, 9 to 10 per cent. ammonia and 15 to 20 per cent. phosphate, $19@$20 per ton, and low grade 7 to 8 per cent. ammonia and 25 to 30 per cent. phosphate, $18.25@$18.75. Fish scrap, $18.50@$19 per ton f.o.b. factory. Sulphate of ammonia, prime gas liquor, $3.20; prime bone liquor, $3.10. Concentrated tankage, $1.67½@$1.70. Refuse, bone black, guaranteed 70 per cent. phosphate, $17@$17.50 per ton. Dissolved bone black is nominally 65c. per unit for available phosphoric acid, although on large lots prices might be somewhat reduced, and acid phosphate 80c. per unit for available phosphoric acid. Steamed bones, unground, $20@$23; ground, $25@$26.

Charleston rock, undried, $7@$7.50 per ton; kiln-dried, $7 per ton; f. o. b. vessels and cars, $7.25.@$7.75, according to time of delivery. Freights by sail from Charleston to New York, $2.75@$3 per ton. Charleston rock, ground, $11.75@$12.25, ex-vessel at NewYork.

Sulphate of potash 45 to 52 per cent. is quoted at $1.12½ per 100 pounds; manure salts, high grade, basis 90 per cent., $2.02½ per 100 pounds.

Kainit.—This article is very quiet at $9.75@$10 for invoice and actual weights, respectively.

Muriate of Potash.—There is a good demand from the South. Sales for the week aggregated some 400 tons at $1.77½@$1.82½. Arrivals at the various ports were 500 tons.

Nitrate of Soda.—A fairly large number of sales have occurred during the week at from $1.80@$1.82½. Prices for future shipments are somewhat lower than these.

Brimstone.—Cable advices report an advancing market. The market here is practically bare as to the spot supply, and spot quotations are simply nominal, but we hear of a sale in Philadelphia of a carload at $26.50. Futures, November steamer, are quoted at $24 for seconds and $23.50 for thirds. Mr. Alfred S. Malcomson sends us the following interesting letter, issued under date of October 29th.:

"The late heavy advance in Sicily brimstone is stated to be caused principally by the great falling off in spot stocks in Sicily and also in the production, which is rapidly decreasing, several mines having been forced to shut down by low values. In my opinion the true cause of the advance is the heavy speculators in Sicily have taken hold of the article and mean to drive it to extreme prices. With pluck and capital they will be able to do this, for not alone are the future wants of this country largely not supplied, but also those of other countries, principally France, Portugal, Spain and Greece, which countries consumed in 1889 an aggregate of 100,883 tons. All the cables received during the past few days by the different importers agree in the fact that the market in Sicily is in a very excited condition and advancing rapidly.

"Nominal quotations are: Best seconds, November-December steamer shipment, New York, $23½; best November-December sail shipment, Southern ports, $24.75, while owing to higher freights by steamer to the South would make the price about $24 per ton.

From cable news received it is very evident that we are going to have still higher prices, and I hear some estimate that $25 is the mark. I give you the stock in Sicily, also exports. Stocks in Sicily on September 30th, 1890: 97,992 tons, in 1890; 116,869 tons, in 1889; 142,881 tons, in 1888; 160,111 tons, in 1887; 168,751 tons, in 1886. Total exports from Sicily, January to September, to United States: 83,318 tons, in 1890; 85,756 tons, in 1889; 88,286 tons, in 1888; 65,088 tons, in 1887; 78,239 tons, in 1886. Total exports from Sicily to all ports, January to September, including United States: 272,803 tons, in 1890; 276,498 tons, in 1889; 257,935 tons, in 1888; 255,523 tons, in 1887; 259,522 tons, in 1886."

**Liverpool.** Oct. 20.

(From Geo. G. Blackwell's Report.)

**Minerals.**—During the week a brisk business has been done at full prices. Manganese: Arrivals somewhat improved. While they have gone direct into consumption, stocks have been further drawn upon, and prices, therefore, are firmer.

**Chemicals.**—Our market has ruled rather quiet, but prices are fully maintained. The McKinley Tariff Bill appears to have a depressing effect, even though not directly concerned in the trade.

## BUILDING MATERIAL MARKET.

NEW YORK, Friday Evening, Oct. 31.

**Bricks.**—Altogether the market in bricks is not in as healthy a condition as it was a week or two ago. The demand just now is not very great, and brick is accumulating. There are on this market from 4,000,000 to 6,000,000 bricks on hand, a very full supply. We hear that there have been heavy floods up the river, and that millions of brick have been destroyed. It may prove beneficial to the market if detrimental to the makers. Quotations for the week are: Haverstraws, $5.50@$6.50 per thousand; Uprivers, $5@$5.75; Jerseys, $4.75@$5.50; pale, $3@$3.25.

**Lime.**—There is a fair demand for lime, but there is not much of a supply on hand. There were no arrivals during the week and dealers report a stronger market, although prices are no higher. Quotations are: Rockland lime, common, 90c., and finishing, $1.10; St. John, common and finishing, 80@90c.; Glen Falls, common and finishing, 90@$1.10.

**Cement.**—The usual amount of business was transacted at prices which are no higher than last week. Our quotations are: Rosendale, $1@$1.10; Portland, American, $2.25@$2.50; foreign, $2.35@$2.75; special brands, $2.60@$2.85; Roman, $2.80@$3; Keene's coarse, $4.50@$5.50; Keene's fine, $7.25@$8.50 per barrel.

NOTES OF THE WEEK.

The strike of the Boston, Mass., Journeymen Freestone Cutters, which has been in progress since February 2d was declared off on October 29th. The cause of the defeat is alleged to be the disunited action of the Building Trades' Council and the refusal of the carpenters and bricklayers to strike after pledging their support. During the trouble $11,000 has been expended to maintain the strike, and only seven of the 275 members of the union returned to their old employers.

## IMPORTS AND EXPORTS OF METALS AT NEW YORK FROM OCTOBER 18 TO OCTOBER 25 AND FROM JANUARY 1.

### IMPORTS.

| Spelter. | Week. Tons. | Year. Tons. |
|---|---|---|
| Amer. Metal Co.... | | 372 |
| Hendricks Bros.... | | 50 |
| La Marche's Sons, H.... | | 5 |
| Lewisohn Bros.... | | 150 |
| Meyer, G. A. & E.... | | 9 |
| Milne & Co.... | | 74 |
| Muller, Schall & Co.... | | 123 |
| Total.... | | 783 |
| Corres. date, 1889.. | | 685 |

| Pig Lead. | Lbs. | Lbs. |
|---|---|---|
| Amer. Metal Co.... | | 360 |
| Bruce & Cook.... | | 25 |
| Caswell, E. A.... | | 211 |
| Hendricks Bros.... | | 100 |
| Naylor & Co.... | | 10 |
| Paulsen, Wm.... | 150 | 350 |
| Schultz & Co., A.... | | 98 |
| G. W. Sheldon.... | | 149 |
| Total.... | 150 | 1,303 |
| Corres. date, 1889.. | | 251 |

| Tin. | Tons. | Tons. |
|---|---|---|
| Abbot, Jere, & Co. | 10 | 165 |
| Amer. Metal Co.... | 40 | 2,511 |
| Bidwell & French.... | | 1,113 |
| Bruce & Cook.... | | 20 |
| Carter, Hawley & Co.... | | 80 |
| Cohen & Co., A.... | | 10 |
| Cohen, H.... | | 20 |
| Cort & Co., N. L.... | | 150 |
| Crooke smelting & Ref. Co.... | 6 | 6 |
| Crooks & Co., R.... | | 85 |
| Davol & Son.... | | 49 |
| Hendricks Bros.... | | 42 |
| Knauth & Kuhne.... | | 10 |
| Lenmaier, S., & Co.... | | 172 |
| Lewisohn Bros.... | | 45 |
| Merchant & Co.... | 20 | 80 |
| Muller, Schall & Co. | 50 | 950 |
| Naylor & Co.... | 50 | 1,455 |
| Nissen, Geo.... | | 10 |
| Phelps, Dodge & Co | 50 | 3,196 |
| Schultz & R.... | 50 | 50 |
| Thomson, A. A. & Co.... | | 60 |
| Thomson, D. & Co. | 10 | 107 |
| Tompkins, Geo. V. | 10 | 10 |
| Townsend, & Co., J. R.... | | 50 |
| Trotter & Co., N.... | | 75 |
| Total.... | 296 | 10,721 |
| Corres. date, 1889.. | | 9,001 |

| Tin Plates. | Boxes. | Boxes. |
|---|---|---|
| Adams & West'keCo.... | | 70 |
| Bruce & Cook.... | 9,519 | 119,219 |
| Byrne & Son.... | | 1,000 |
| Central Stamp. Co. | 1,724 | 57,125 |
| Coddington & Co... | 2,996 | 132,052 |
| Cohn & Co.... | 1,497 | 17,316 |
| Con. Fruit Jar Co.... | | 120 |
| Cornière & Co.... | | 7,902 |
| Cort & Co.... | 13,595 | 196,311 |
| Crooke & Co.... | 6,984 | 88,988 |
| De Milt & Co, H R | 2,876 | 12,763 |
| Dickerson, V. D. & Co | 11,313 | 321,922 |
| Fenton, D. E.... | 273 | 4,491 |
| Haberman, F.... | | 66 |
| Herring, Chas. E.... | | 1,000 |
| Iron Clad Mfg. Co.... | | 597 |
| Lalance & G. M. Co.... | | 9,118 |
| Lazard Bros.... | | 1,048 |
| Lehmaier, Schw'z & Co... | | 200 |
| Merchant & Co.... | 2,196 | 27,822 |
| Mersick & Co.... | 1,076 | 11 907 |
| Morewood & Co.... | | 40,739 |
| Newell Bros.... | | 416 |
| Payne, S. H. & Co.... | | 934 |
| Pratt Mfg. Co.... | | 95,271 |
| Phelps, Dodge & Co | 54,581 | 715 825 |
| Schneider & Co., J.... | | 3,365 |
| Shepard & Co., S.... | 858 | 15,684 |
| Shepherd & Co., W.... | | 200 |
| Standard Oil Co.... | 11,318 | 24,963 |
| Taylor, N. & G.... | 200 | 1,429 |
| Thomson & Co., A. A. | 7,036 | 97,036 |
| Warren, J. M.... | | 4,868 |
| Wheeler & Co.... | 2,152 | 29,276 |
| Whittemore & Co.... | | 14,518 |
| Wolff & Reesing.... | | 2,077 |
| Wright, Peter & Co.... | | 227 |
| Total.... | 133,694 | 2,057,595 |
| Corres. date, 1889.. | 43,569 | 1,911,388 |

| Pig Iron. | Tons. | Tons. |
|---|---|---|
| Abbott & Co., Jere.... | | 250 |
| Baldwin & Co., A.... | | 807 |
| Baldwin Bros. & Co.... | | 170 |
| Crocker Bros.... | | 1,515 |
| Crooks & Co., R.... | | 5 |
| Dana & Co.... | | 150 |
| Drummond & Co.... | | 400 |
| Geisenheimer & Co.... | | 76 |
| Hagermeyer & Brun.... | | 30 |
| Henderson Bros.... | | 100 |
| Irvin. R. I. & Co.... | | 400 |
| Lillienberg, N.... | | 2,409 |
| Naylor & Co.... | | 150 |
| Perry & Reyer.... | | 53 |
| Pierson & Co.... | | 30 |
| Sheldon, G. W. & Co.... | | 200 |
| Stetsson & Co., G. W.... | | 2,725 |
| Williamson, J. & Co.... | | 1,800 |
| Total.... | | 11,270 |
| Corres. date, 1889.. | 775 | 27,466 |

| Steel Blooms, Billets, and Slabs. | Tons. | Tons. |
|---|---|---|
| Abbott & Co.... | | 233 |
| Baldwin Bros. & Co.... | | 2 |
| Dana & Co.... | | 1,670 |
| Dolge & Co., A.... | | 1 |
| Downing, R. F. & Co.... | | 109 |
| Henderson Bros.... | | 1 |
| Holt & Co., H. N.... | | 4 |
| Martin & Co.... | | 80 |
| Milne, A., & Co.... | | 225 |
| Naylor & Co.... | 152 | 2,298 |
| Pope, Jas. E., Jr.... | | 61 |
| Richards & Co., C. B.... | | 1 |
| Roebling's Sons, J. A.... | | 2,074 |
| Ward & Co., J. C.... | | 198 |
| Wolff, & Co., R. H.... | | 60 |
| Total.... | 152 | 7,017 |
| Corres. date, 1889.. | 581 | 24,063 |

| Bar Iron. | Tons. | Tons. |
|---|---|---|
| Abbott & Co., Jere.... | | 221 |
| Bacon & Co.... | | 1,319 |
| Crocker Bros.... | | 77 |
| Dickerson, Van Dusen & Co.... | | 6 |
| Downing & Co.... | | 285 |
| E. J. Jacobus.... | | 104 |
| Fuller, Dana & Fitz.... | | 11 |
| Holt, H. N.... | | 230 |
| Lilienberg, N.... | | 556 |
| Lundberg, G.... | 36 | 2,477 |
| Milne & Co.... | | 1,189 |
| Muller, Schall & Co.... | | 304 |
| Naylor & Co.... | 30 | 829 |
| Page, Newell & Co.... | | 1,855 |
| Plenty, J.... | | 14 |
| Wilson, J. G.... | | 3 |
| Total.... | 66 | 10,080 |
| Corres. date, 1889.. | | 8,909 |

| Scrap Iron. | Tons. | Tons. |
|---|---|---|
| Baldwin Bros. & Co.... | | 7 |
| Crossman & Co., W. H.... | | 30 |
| Frankfort, M.... | | 347 |
| Leary, D.... | | 27 |
| McDougall & Potter.... | | 92 |
| Muller, Schall & Co.... | | 18 |
| Pierson, C. L.... | | 101 |
| Samper & Co, S.... | | 186 |
| Stevens, Corvin & Co.... | | 30 |
| Ward, J. E. & Co.... | | 737 |
| Total.... | | 1,575 |
| Corres. date, 1889... | 445 | 3,331 |

| Steel and Iron Rods. | Tons. | Tons. |
|---|---|---|
| Abbott & Co.... | 280 | 9 317 |
| American S. Co.... | | 765 |
| Bacon & Co.... | | 546 |
| Bunnell & Co., J. H.... | | 50 |
| Carey & Moen.... | 25 | 525 |
| Cooper, Hewitt & Co.... | | 371 |
| Dana & Co.... | | 1,196 |
| Dodge & Co, A.... | | 3 |
| Downing & Co.... | | 129 |
| Galpin, S. A.... | | 1,241 |
| Greely & Co. E. S.... | | 35 |
| Hazard Mfg. Co | 30 | 506 |
| Holt & Co., H. N.... | | 3 |
| Jacobus, E. Y.... | 6 | 8 |
| Lee, James & Co.... | | 1,752 |
| Lillienberg, N.... | | 300 |
| Lundberg, G.... | | 157 |
| Lundell, C. G.... | | 5 |
| Milne & Co.... | | 1,748 |
| Muller, Schall & Co.... | | 850 |
| Naylor & Co.... | 200 | 6,952 |
| Page, Newell & Co.... | | 1,652 |
| Roebling's Sons, J. A.... | | 2,687 |
| Sanderson & Son.... | | 1 |
| Schulze & R.... | | 1 |
| Taylor, N. L.... | | 16 |
| Temple & Lockw'd.... | | 6 |
| Wallace, W.... | 5 | 5 |
| Wessel & Co.... | | 21 |
| Wiebusch & Ho.... | | 4 |
| Wood & Niebuhr.... | | 25 |
| Wolf & Co., R. H.... | 90 | 3,399 |
| Total.... | 636 | 34,277 |
| Corres. date, 1889... | 404 | 39,023 |

| Old Rails. | Tons. | Tons. |
|---|---|---|
| Bowring & Archibald.... | | 340 |
| Dana & Co.... | | 779 |
| Frankfort, M.... | 594 | 8,859 |
| Henderson Bros.... | | 300 |
| Hernsheim, L.... | | 350 |
| Mosle Bros.... | | 123 |
| Naylor & Co.... | 250 | 3,099 |
| Sawyer, Wallace & Co.... | | 610 |
| West, H.... | | 398 |
| Wiechers, J. F.... | | 150 |
| Total.... | 844 | 15,008 |
| Corres. date, 1889... | 300 | 10,547 |

| Spiegeleisen. | Tons. | Tons. |
|---|---|---|
| Abbott, Jere & Co.... | | 2,725 |
| American Metal Co.... | | 100 |
| Blakely & McLellan.... | | 1.684 |
| Crocker Bros.... | 270 | 22.996 |
| Crooks & Co. R.... | | 106 |
| Dana & Co.... | 25 | 15,950 |
| Foley, F.... | | 50 |
| Geisenheimer & Co. | 100 | 858 |
| Henderson Bros. & Co.... | | 14 |
| Hernsheim, L.... | 1,630 | 20,152 |
| Holt, H. N.... | | 200 |
| Ivin & Co., R. I.... | | 50 |
| Naylor & Co.... | 495 | 13,158 |
| Perkins, C. L.... | | 1,452 |
| Sachs & Richmond.... | | 2 |
| Whittemore, H. & Co.... | | 55 |
| Total.... | 2,520 | 79,552 |
| Corres. date, 1889... | 575 | 68,963 |

| Iron Ore. | Tons. | Tons. |
|---|---|---|
| Baiz, Jacob.... | | 67 |
| Bergen Point Chemical Co.... | | 3.350 |
| Bowring & Archibald.... | | 5,292 |
| Earnshaw, A.... | | 3,674 |
| Ennis, Andrew.... | | 438 |
| Flores & Co., R. de.... | | 14,143 |
| Johnson & Co., L.... | | 5,030 |
| Total.... | | 31,994 |
| Corres. date, 1889.. | 300 | 9,436 |

### EXPORTS.

| Copper. | Pounds. | Pounds. |
|---|---|---|
| Abbott & Co., Jere.... | | 2,545,103 |
| Amer. Met. Co., La.... | | 940,3 5 |
| Barber & Co.... | | 13.750 |
| Belmont, Aug. & Co.... | | 1,763,974 |
| Boker, C. F.... | | 117,000 |
| Burgass & Co.... | | 227,290 |
| French, Edye & Co.... | | 135,374 |
| Heidelbach, Sicheimer & Co.... | | 672,608 |
| Lewisohn Bros.... | 2,500 | 251,478 |
| Muller, Schall & Co.... | | 16,250 |
| Paulsen, Wm.... | | 50,000 |
| Sawyer, W'l'ce & Co.... | | 22,796 |
| Seamen, S. H.... | | 66,950 |
| Ward, J. E. & Co.... | | 100,000 |
| Wiechers, J. F.... | | 29,977 |
| Wil'ms & T'hune.... | | 112,000 |
| Total.... | 2,500 | 7,049,939 |
| Corre. date, 1889.. | 449,826 | 11,132,537 |

| Copper Matte. | | |
|---|---|---|
| American Metal Co.... | | 3.072.079 |
| Lewisohn Bros.. | 1,164,379 | 6.272,767 |
| Nichols, Geo. H.... | | 250,202 |
| Paulsen, Wm.... | | 1,039,428 |
| Wil'ms & T'hune.... | | 2,848,706 |
| Total.... | 1,164,379 | 13,500,182 |
| Corres. date 1889. | 1,444,623 | 29,691,469 |

## DIVIDEND-PAYING MINES.

| | Name and Location of Company. | Capital Stock. | Shares. No. | Shares. Par | Assessments. Total levied. | Assessments. Date and Amount of last | Dividends. Total paid. | Dividends. Date & amount of last. |
|---|---|---|---|---|---|---|---|---|
| 1 | Adams, s. L. | Colo. | $1,500,000 | 150,000 | $10 | * | | $555,000 Jan. 1887 .10 |
| 2 | Alice, s. C. | Mont. | 10,000,000 | 400,000 | 25 | * | | 850,000 July 1890 .06½ |
| 3 | Alma&Nel Wood C.,G | Idaho | 300,000 | 30,000 | 10 | * | | 60,000 Jan. 1889 .50 |
| 4 | American & Nettie,C. | Colo. | | 300,000 | | | | 150,000 Nov. 1889 .10 |
| 5 | Amy & Silversmith,S. | Mont. | | 341,419 | | | | 247,530 Aug. 1887 .12½ |
| 6 | Atlantic, C. | Mich. | 1,000,000 | 40,000 | 25 | $280,000 April 1875 | $1.00 | 660,000 Aug. 1890 1.00 |
| 7 | Argenta, s. | Nev. | 10,000,000 | 100,000 | 100 | 335,000 July. 1889 | .10 | 40,000 Feb. 1880 .20 |
| 8 | Aspen Mg. & S., S. L. | Colo. | 2,000,000 | 200,000 | 10 | * | | 520,000 Oct. 1890 .10 |
| 9 | Aurora, I. | Mich. | 2,000,000 | 100,000 | 20 | | | 155,000 Oct. 1887 1.87½ |
| 10 | Badger, s. | Ont. | 250,000 | 50,000 | 5 | | | 37,500 Mar. 1890 .25 |
| 11 | Bassick, G. S. | Colo. | 10,000,000 | 100,000 | 100 | * | | 400,000 Mar. 1884 1.00 |
| 12 | Belle Isle, s. | Nev. | 10,000,000 | 100,000 | 100 | 190,000 Dec. 1889 | .15 | 300,000 Dec. 1879 .25 |
| 13 | Belcher, G. S. | Nev. | 10,400,000 | 104,000 | 100 | 2,978,000 June 1890 | .50 | 15,397,000 April 1876 1.00 |
| 14 | Bellevue, Idaho, S. L. | Idaho | 1,250,000 | 125,000 | 10 | 120,000 Dec. 1889 | .25 | 300,000 Jan. 1887 .10 |
| 15 | Bi-Metallic, s. | Mont. | 5,000,000 | 200,000 | 25 | | | 150,000 Sept. 1890 .25 |
| 16 | Bodie Con., G. S. | Cal. | 10,000,000 | 100,000 | 100 | 575,000 Nov.. 1889 | .25 | 1,602,572 April 1885 .50 |
| 17 | Boston & Mont., G. | Mont. | 2,500,000 | 250,000 | 10 | * | | 520,000 June 1886 1.15 |
| 18 | Boston & Mont., C. S. | Mont. | 2,500,000 | 100,000 | 25 | * | | 1,450,000 Aug. 1890 .50 |
| 19 | Breece, s. | Colo. | 5,000,000 | 200,000 | 25 | * | | 2,000 Feb. 1880 .01 |
| 20 | Brooklyn Lead, L. S. | Utah | 500,000 | 50,000 | 10 | | | 127,000 July. 1887 .05 |
| 21 | Bulwer, G. | Cal. | 10,000,000 | 100,000 | 10 | 130,000 Aug.. 1889 | .25 | 175,000 Jan. 1884 .10 |
| 22 | Bunker Hill & Sull. | Idaho | 3,000,000 | 300,000 | 10 | * | | 150,000 Oct. 1883 .06½ |
| 23 | Caledonia, G. & Sull. | Dak. | 10,000,000 | 100,000 | 100 | 505,000 May . 1885 | .15 | 194,000 Oct. 1890 .06 |
| 24 | Calliope, s. | Colo. | 1,000,000 | 1,000,000 | | | | 90,000 April 1890 .01 |
| 25 | Calumet & Hecla, C. | Mich. | 2,500,000 | 100,000 | 25 | 1,200,000 | | 34,350,000 May . 1890 5.00 |
| 26 | Carbonate Hill, s. L. | Colo. | 1,500,000 | 200,000 | 10 | * | | 80,000 April 1884 .05 |
| 27 | Carlisle, G. | N. M. | 1,000,000 | 200,000 | 5 | | | 175,000 Dec. 1888 .12½ |
| 28 | Castle Creek, G. | Idaho | 100,000 | 100,000 | 1 | | | 51,000 Oct. 1883 .06 |
| 29 | Catalpa, S. L. | Colo. | 3,000,000 | 300,000 | 10 | * | | 270,000 May. 1884 .10 |
| 30 | Central, C. | Mich. | 500,000 | 20,000 | 25 | 100,000 Oct. 1861 | .65 | 1,950,000 Feb. 1890 1.00 |
| 31 | Chrysolite, S. L. | Colo. | 10,000,000 | 200,000 | 50 | * | | 1,650,000 Dec. 1884 .25 |
| 32 | Colorado Central,S.L. | Colo. | 2,750,000 | 275,000 | 10 | * | | 406,250 Aug. 1889 .05 |
| 33 | Confidence, S. L. | Nev. | | 24,960 | | 328,880 May . 1890 | .75 | 199,680 April 1889 1.00 |
| 34 | Cons. Cal. & Va., G. S. | Nev. | 21,600,000 | 216,000 | 100 | 108,000 Jan.. 1885 | .20 | 3,468,800 April 1890 .25 |
| 35 | Contention, S. | Ariz. | 12,500,000 | 250,000 | 50 | | | 12,500,000 Dec. 1884 .25 |
| 36 | **Cop. Queen Con., C. | Ariz. | 1,400,000 | 140,000 | 10 | | | 210,000 Feb. 1889 .50 |
| 37 | Crescent, S. L. G. | Utah | 15,000,000 | 600,000 | 25 | * | | 228,000 Oct. 1888 .03 |
| 38 | Crown Point, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 2,425,000 Sept. 1889 | .50 | 11,588,000 Jan. 1875 2.00 |
| 39 | Daly, S. L. | Utah | 3,000,000 | 150,000 | 20 | * | | 1,669,000 Oct. 1890 .25 |
| 40 | Deer Creek, S. G. | Idaho | 1,000,000 | 200,000 | 5 | * | | 20,000 June 1889 .05 |
| 41 | Deadwood-Terra, G. | Dak. | 5,000,000 | 200,000 | 25 | * | | $1,400,000 Nov.. 1887 .10 |
| 42 | Derbec B. Grav., G. S. | Cal. | 10,000,000 | 100,000 | 100 | 90,000 Dec.. 1881 | .10 | 240,000 Oct. 1890 .10 |
| 43 | Dunkin, S. L. | Colo. | 5,000,000 | 200,000 | 25 | * | | 390,000 Oct. 1889 .05 |
| 44 | Dunstone, G. S. L. | Mont. | 1,000,000 | 200,000 | 5 | * | | 6,000 Nov.. 1888 .03 |
| 45 | Eclipse, | Colo. | 100,000 | 100,000 | 1 | | | 20,000 Nov.. 1887 .10 |
| 46 | Elkhorn, G. S. | Mont. | 1,000,000 | 100,000 | 10 | 50,000 July. 1883 | .50 | 850,000 July. 1887 .05 |
| 47 | Empire Lt., G. | Mont. | 500,000 | 100,000 | 5 | | | 70,500 Oct. 1887 .37½ |
| 48 | Eureka Con., G. S. L. | Nev. | 5,000,000 | 50,000 | 100 | 550,000 June 1889 | .50 | 4,892,500 Oct. 1890 .25 |
| 49 | Evening Star, S. L. | Colo. | 500,000 | 50,000 | 10 | * | | 1,458,000 Dec. 1889 .25 |
| 50 | Excelsior, G. | Cal. | 10,000,000 | 100,000 | 100 | 563,000 Sept. 1885 | 1.00 | 875,000 Oct. 1890 .25 |
| 51 | Father de Smet, G. | Dak. | 10,000,000 | 100,000 | 100 | 300,000 Nov.. 1878 | 1.00 | 1,125,000 Dec. 1885 .20 |
| 52 | Franklin, C. | Mich. | 1,000,000 | 40,000 | 25 | 220,000 June 1871 | | 960,000 Jan. 1889 2.00 |
| 53 | Freeland, G. S. C. | Colo. | 5,000,000 | 200,000 | 25 | * | | 190,000 July. 1886 .10 |
| 54 | Garfield Lt., G. S. | Nev. | 500,000 | 100,000 | 5 | | | 95,000 April 1888 .12½ |
| 55 | Gould & Curry, G. S. | Nev. | 10,800,000 | 108,000 | 100 | 3,388,800 Sept. 1890 | .25 | 2,826,000 Oct.. 1870 10.00 |
| 56 | Grand Prize, S. | Nev. | 10,000,000 | 100,000 | 100 | 785,000 Jan. 1890 | .30 | 525,000 Jan. 1890 .30 |
| 57 | Granite, S. L. | Idaho | 500,000 | 500,000 | 1 | * | | 28,400 Oct. 1889 .02 |
| 58 | Granite Mountain, S. | Mont. | 10,000,000 | 400,000 | 25 | | | 9,200,000 July. 1890 .50 |
| 59 | Green Mountain, G. | Cal. | 1,250,000 | 125,000 | 10 | * | | 212,000 Nov.. 1881 .07½ |
| 60 | Hale & Norcross, G. S. | Nev. | 11,200,000 | 112,000 | 100 | 5,142,800 April 1890 | .50 | 1,162,000 July. 1888 .50 |
| 61 | Hecla Con., S. & L. C. | Mont. | 1,500,000 | 30,000 | 50 | | | 1,500,000 April 1889 .50 |
| 62 | Hel'a Mg.& Red,G.S.L. | Mont. | 3,315,000 | 663,000 | 5 | * | | 197,979 July. 1886 .06 |
| 63 | Holmes, S. | Nev. | 10,000,000 | 100,000 | 100 | 370,000 May . 1890 | .25 | 75,000 April 1886 .25 |
| 64 | Holyoke, G. | Idaho | 200,000 | 200,000 | 1 | | | 27,000 Feb. 1883 .10 |
| 65 | Homestake, G. | Dak. | 12,500,000 | 125,000 | 100 | 200,000 July. 1878 | 1.00 | 5,593,750 Oct. 1890 .10 |
| 66 | Honorine, S. L. | Utah | 500,000 | 250,000 | 2 | 37,500 April 1889 | .05 | 125,000 Sept. 1887 .05 |
| 67 | Hope, S. | Mont. | 1,000,000 | 100,000 | 10 | * | | 233,252 April 1888 .25 |
| 68 | Horn-Silver, S. L. | Utah | 10,000,000 | 400,000 | 25 | * | | 4,150,000 June 1890 .12½ |
| 69 | Hubert, G. | Colo. | 1,000,000 | 1,000,000 | 1 | | | 247,000 Dec. 1889 .00½ |
| 70 | Idaho, G. | Cal. | 310,000 | 3,100 | 100 | | | 5,235,900 Dec. 1889 5.00 |
| 71 | Ideal, S. L. | Colo. | 1,500,000 | 50,000 | 10 | | | 15,000 Oct. 1886 .05 |
| 72 | Illinois, S. | N. M. | 100,000 | 100,000 | 1 | * | | 45,000 April 1889 .20 |
| 73 | Independence, S. | Nev. | 10,000,000 | 100,000 | 100 | 340,000 Oct. 1886 | .20 | 225,000 Sept. 1879 .25 |
| 74 | Iron Hill, S. | Dak. | 2,500,000 | 250,000 | 10 | 134,000 July. 1889 | .03 | 156,250 Nov. 1887 .07½ |
| 75 | Iron Silver, S. L. | Colo. | 10,000,000 | 500,000 | 20 | * | | 2,500,000 April 1889 .20 |
| 76 | Jackson, G. S. | Nev. | 5,000,000 | 50,000 | 100 | 237,500 Nov.. 1880 | .20 | 55,000 June 1889 .10 |
| 77 | Jay Gould. | Mont. | 2,000,000 | 40,000 | 5 | * | | 459,093 May . 1890 .04 |
| 78 | Jocuistita, L. | Mex. | 2,500,000 | 250,000 | 10 | | | 1,200,000 Feb. 1885 .50 |
| 79 | Jumbo, G. | Colo. | 2,000,000 | 200,000 | 10 | * | | 35,000 Oct. 1887 .02½ |
| 80 | Kearsarge, C. | Mich. | 1,250,000 | 50,000 | 25 | 190,000 Oct. 1887 | 1.00 | 100,000 Jan. 1890 2.00 |
| 81 | Kentuck | Nev. | 3,000,000 | 30,000 | 100 | 406,930 Aug.. 1890 | .30 | 1,350,000 Dec. 1886 .10 |
| 82 | La Platta, S. L. | Colo. | 2,000,000 | 200,000 | 10 | * | | 610,000 Sept. 1882 .30 |
| 83 | Leadville Con., S. L. | Colo. | 4,000,000 | 400,000 | 10 | * | | 4,423,000 April 1889 .05 |
| 84 | Lexington, G. S. | Mont. | 4,000,000 | 40,000 | 100 | * | | 609,000 Jan. 1885 2.00 |
| 85 | Little Chief, S. L. | Colo. | 10,000,000 | 200,000 | 50 | * | | 810,000 Jan. 1890 .05 |
| 86 | Little Pittsburg, S. L. | Colo. | 20,000,000 | 200,000 | 100 | * | | 1,030,000 Mar 1890 .50 |
| 87 | Little Rule | Utah | 500,000 | 500,000 | 1 | | | 30,000 June 1890 .02 |
| 88 | Mammoth | Utah | 10,000,000 | 400,000 | 25 | | | 480,000 Aug.. 1890 .10 |
| 89 | Martin White, S. | Nev. | 10,000,000 | 100,000 | 100 | 1,225,000 Oct. 1890 | .25 | 140,000 Dec. 1886 .25 |
| 90 | Mary Murphy, G. S. | Colo. | 350,000 | 3,500 | 100 | * | | 175,000 May . 1888 5.00 |
| 91 | Matchless, S. | Colo. | 500,000 | 500,000 | 1 | * | | 15,000 Feb. 1890 .00½ |
| 92 | May Mazeppa | Colo. | 1,000,000 | 100,000 | 1 | | | 50,300 Oct. 1890 .01 |
| 93 | Minnesotta, C. | Mich. | 1,000,000 | 40,000 | 25 | 420,000 April 1886 | 1.00 | 1,820,000 Mar 1876 |
| 94 | Mono, G. | Cal. | 1,000,000 | 50,000 | 100 | 760,000 Sept. 1890 | .25 | 12,500 Mar 1886 .25 |
| 95 | Montana, Lt., G. S. | Mont. | 3,300,000 | 660,000 | 5 | * | | 2,489,675 Oct. 1890 .06 |
| 96 | Morning Star, S. L. | Colo. | 1,000,000 | 100,000 | 10 | * | | 850,000 Dec. 1889 .20 |
| 97 | Moulton, S. G. | Mont. | 2,000,000 | 400,000 | 5 | * | | 380,000 Dec. 1887 .07½ |
| 98 | Mount Pleasant, G. | Cal. | 150,000 | 150,000 | 1 | * | | 150,000 Feb. 1887 .30 |
| 99 | Mt. Diablo, S. | Nev. | 5,000,000 | 50,000 | 100 | 137,500 June 1880 | 2.00 | 160,000 Oct. 1889 .20 |
| 100 | Napa, Q. | Cal. | 700,000 | 700,000 | 1 | * | | 100,000 Oct. 1890 .10 |
| 101 | Navajo, G. | Nev. | 10,000,000 | 100,000 | 100 | 500,000 April 1890 | .15 | 365,000 April 1889 .10 |
| 102 | New Guston, S. | Colo. | 500,000 | 100,000 | 5 | * | | 337,500 April 1890 .50 |
| 103 | N. Hoover Hill, G. S. | N. C. | 300,000 | 120,000 | 2½ | * | | 30,000 Dec. 1885 .06½ |
| 104 | Northern Belle, S. | Nev. | 5,000,000 | 50,000 | 100 | 425,000 Jan.. 1884 | 8.00 | 2,400,000 April 1883 .50 |
| 105 | North Belle Isle, S. | Nev. | 10,000,000 | 100,000 | 100 | 395,000 April 1890 | .20 | 230,000 May . 1888 .50 |
| 106 | North Star, G. | Cal. | 1,000,000 | 100,000 | 10 | * | | 250,000 Dec. 1889 .50 |
| 107 | Ontario, S. L. | Utah | 15,000,000 | 150,000 | 100 | | | 11,575,000 Oct. 1889 .10 |
| 108 | Ophir, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 4,210,640 April 1890 | .50 | 1,595,800 July. 1882 1.00 |
| 109 | Original, S. C. | Mont. | 1,500,000 | 60,000 | 25 | * | | 123,000 July. 1888 .05 |
| 110 | Oro | Colo. | 500,000 | 100,000 | 5 | | | 60,000 June 1890 .20 |
| 111 | Osceola, C. | Mich. | 1,250,000 | 50,000 | 25 | 480,000 April 1876 | 1.60 | 1,372,500 Sept. 1890 1.00 |
| 112 | Oxford, G. | N. S. | 125,000 | 125,000 | 1 | * | | 78,500 Sept. 1888 .02 |
| 113 | Paradise Valley, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 57,000 April 1888 | .15 | 150,000 April 1887 .50 |
| 114 | Parrot, C. | Mont. | 1,800,000 | 180,000 | 10 | | | 696,000 Sept. 1890 .10 |
| 115 | Peacock, S. G. C. | N. M. | 2,000,000 | 200,000 | 10 | * | | 60,000 Nov 1886 |
| 116 | Plumas Eureka, G. | Cal. | 1,406,250 | 140,625 | 10 | * | | 2,548,046 Oct. 1889 .37½ |
| 117 | Plutus, G. S. C. L. | Colo. | 2,000,000 | 200,000 | 10 | * | | 20,000 Feb. 1886 .10 |
| 118 | Plymouth Con., G. | Cal. | 5,000,000 | 100,000 | 50 | * | | 2,280,000 Feb. 1888 .40 |
| 119 | Quicksilver, pref., Q. | Cal. | 4,300,000 | 43,000 | 100 | * | | 1,705,791 Aug.. 1890 1.50 |
| 120 | " com., Q. | Cal. | 5,700,000 | 57,000 | 100 | | | 645,867 July. 1890 .40 |
| 121 | Quincy, C. | Mich. | 1,000,000 | 40,000 | 25 | 200,000 Dec. 1862 | | 5,570,000 Aug.. 1890 5.00 |
| 122 | Republic, C. | Mich. | 5,000,000 | 100,000 | 50 | 400,000 Dec. 1889 | .30 | 4,312,587 June 1887 1.25 |
| 123 | Richmond, S. L. | Nev. | 1,350,000 | 54,000 | 25 | * | | 99,785 Feb. 1890 .50 |
| 124 | Ridge, C. | Mich. | 500,000 | 20,000 | 25 | 219,939 Mar . 1886 | .50 | 595,000 Mar 1886 .05 |
| 125 | Robinson Con., S. L. | Colo. | 10,000,000 | 200,000 | 50 | * | | 100,000 Dec. 1882 .50 |
| 126 | Robert E. Lee, S. L. | Colo. | 10,000,000 | 500,000 | 20 | | | 4,000,000 July. 1889 3.00 |
| 127 | Savage, S. | Nev. | 11,200,000 | 112,000 | 100 | 6,604,000 Nov.. 1889 | .50 | 7,500 April 1883 .01 |
| 128 | Shoshone, G. | Idaho | 150,000 | 150,000 | 1 | | | 1,568,145 April 1888 .12½ |
| 129 | Sierra Buttes, G. | Cal. | 2,225,000 | 122,500 | 10 | | | 102,000 Jan. 1871 1.00 |
| 130 | Sierra Nevada, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 6,236,910 May . 1890 | .50 | 270,000 April 1889 .10 |
| 131 | Sierra Nevada, S. L. | Idaho | 1,000,000 | 1,000,000 | 1 | * | | 40,000 May . 1889 .02 |
| 132 | Silver Cord, G. S. L. | Colo. | 4,500,000 | 450,000 | 10 | | | 270,000 April 1890 .10 |
| 133 | Silver King, S. | Ariz. | 10,000,000 | 100,000 | 100 | 130,000 Sept. 1890 | .30 | 1,350,000 July. 1887 .25 |
| 134 | Silver Mg. of L. V. | N. M. | 500,000 | 500,000 | 1 | * | | 250,000 Oct. 1890 .05 |
| 135 | Silverton, G. S. L. | Colo. | 2,000,000 | 200,000 | 10 | * | | 50,000 Jan. 1881 .25 |
| 136 | Small Hopes Con., S. | Colo. | 5,000,000 | 250,000 | 20 | * | | 3,162,500 Oct. 1890 .25 |
| 137 | Spring Valley, G. | Cal. | 200,000 | 200,000 | 1 | 50,000 Oct. 1886 | .25 | 3,595,000 June 1888 .05 |
| 138 | Standard, G. S. | Cal. | 10,000,000 | 100,000 | 100 | 100,000 June 1890 | .50 | 135,000 Nov 1881 .05 |
| 139 | Stormont, S. | Utah | 500,000 | 500,000 | 1 | * | | 844,000 Dec. 1889 .20 |
| 140 | St. Joseph, L. | Mo. | 1,500,000 | 150,000 | 10 | * | | 9,000 April 1888 .02½ |
| 141 | Swansea, G. | Colo. | 600,000 | 60,000 | 10 | * | | 100,000 Nov 1881 .20 |
| 142 | Tamarack, C. | Mich. | 1,000,000 | 40,000 | 25 | 520,000 April 1885 | 3.00 | 1,670,000 Oct. 1890 4.00 |
| 143 | Tombstone, G. S. L. | Ariz. | 12,500,000 | 500,000 | 25 | * | | 1,250,000 April 1882 .10 |
| 144 | United Verde, C. | Ariz. | 3,000,000 | 300,000 | 10 | * | | 97,500 Feb. 1884 .25 |
| 145 | Valencia, M. | N. H. | 150,000 | 1,500 | 100 | * | | 41,250 April 1886 2.50 |
| 146 | Viola Lt., S. L. | Idaho | 750,000 | 150,000 | 5 | | | 272,500 Oct. 1887 .37½ |
| 147 | Ward Con., S. L. | Colo. | 2,000,000 | 200,000 | 10 | | | 20,000 Dec. 1889 .05 |
| 148 | Yankee Girl | Colo. | 2,500,000 | 250,000 | 10 | | | 1,275,000 July. 1887 .10 |
| 149 | Yellow Jacket, G. S. | Nev. | 12,000,000 | 120,000 | 100 | 5,508,000 Mar . 1889 | .50 | 2,148,000 Aug.. 1871 1.50 |
| 150 | Week City, L. S. | Mo. | 55,000 | 11,000 | 5 | | | 4,400 July. 1889 .10 |
| 151 | Woodside | Utah | | | | | | 25,000 Oct. 1889 .25 |
| 152 | Young America | Cal. | | | | | | 175,000 1889 .10 |

## NON-DIVIDEND PAYING MINES.

| | Name and Location of Company. | Capital Stock. | Shares. No. | Shares. Par | Assessments. Total levied. | Assessments. Date and am't of last. |
|---|---|---|---|---|---|---|
| 1 | Agassiz Cons., S. L. | Colo. | $2,500,000 | 50,000 | $50 | * |
| 2 | Allegheny, S. | Colo. | 5,000,000 | 500,000 | 10 | |
| 3 | Allouez, C. | Mich. | 2,000,000 | 80,000 | 25 | $737,000 Jan. 1890 .70 |
| 4 | Alpha Con., G. S. | Nev. | 3,000,000 | 30,000 | 100 | 112,500 Sept. 1890 .25 |
| 5 | Alta, S. | Nev. | 10,080,000 | 100,800 | 100 | 3,359,800 Sept. 1890 .50 |
| 6 | Amador, G. | Cal. | 400,000 | 200,000 | 2 | * |
| 7 | American Flag, S. | Colo. | 1,250,000 | 125,000 | 10 | 300,000 June 1887 |
| 8 | Amity, S. | Colo. | 250,000 | 250,000 | 1 | |
| 9 | Anglo-Montana, Lt. | Mont. | 600,000 | 120,000 | 5 | |
| 10 | Astoria, G. | Cal. | 200,000 | 100,000 | 2 | |
| 11 | Barcelona, G. | Nev. | 5,000,000 | 200,000 | 25 | * |
| 12 | Bechtel Coa., G. | Cal. | 10,000,000 | 100,000 | 100 | 173,500 Jan. 1883 .10 |
| 13 | Belmont, S. | Nev. | 5,000,000 | 50,000 | 100 | 735,000 April 1886 .10 |
| 14 | Best & Belcher, G. S. | Nev. | 10,080,000 | 100,800 | 100 | 2,279,275 Aug.. 1890 .25 |
| 15 | Big Pittsburg, S. L. | Colo. | 20,000,000 | 200,000 | 100 | * |
| 16 | Black Oak, G. | Cal. | 3,000,000 | 300,000 | 10 | * |
| 17 | Boston Con., G. | Cal. | 10,000,000 | 100,000 | 100 | 170,000 Nov.. 1885 .25 |
| 18 | Bremen, S. | N. M. | 5,000,000 | 500,000 | 10 | * |
| 19 | Brownlow, S. | Colo. | 250,000 | 250,000 | 1 | |
| 20 | Brunswick, G. | Cal. | 2,000,000 | 400,000 | 5 | * |
| 21 | Bullion, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 2,790,000 Dec.. 1889 .25 |
| 22 | Calaveritas, G. | Cal. | 500,000 | 500,000 | 1 | * |
| 23 | Carisa, G. | Wy. | 500,000 | 100,000 | 5 | * |
| 24 | Carupano, G. S. L. C. | Ven. | 200,000 | 100,000 | 2 | * |
| 25 | Cashier, G. S. | Colo. | 500,000 | 250,000 | 2 | * |
| 26 | Charles Dickens, G. S. | Idaho | 1,250,000 | 250,000 | 5 | * |
| 27 | Cherokee, G. | Cal. | 1,500,000 | 150,000 | 10 | |
| 28 | Chollar, S. | Nev. | 11,200,000 | 112,000 | 100 | 1,540,000 Nov.. 1889 .50 |
| 29 | Cleveland, S. | Dak. | 1,000,000 | 500,000 | 2 | * |
| 30 | Colchis, N. M. | | 500,000 | 50,000 | 10 | |
| 31 | Commonwealth, S. | Nev. | 10,000,000 | 100,000 | 100 | 170,000 Nov.. 1888 .50 |
| 32 | Comstock, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 35,000 Mar . 1887 .15 |
| 33 | Con. Imperial, G. S. | Nev. | 5,000,000 | 50,000 | 100 | 1,875,000 July. 1890 .05 |
| 34 | Con. Pacific, G. | Cal. | 6,000,000 | 60,000 | 100 | 198,000 June 1890 .10 |
| 35 | Consol. Ver., S. | Mo. | 2,500,000 | 250,000 | 10 | * |
| 36 | Crescent, S. L. | Colo. | 3,000,000 | 300,000 | 10 | |
| 37 | Crocker, S. | Ariz. | 10,000,000 | 100,000 | 100 | 150,000 June 1890 .15 |
| 38 | Crowell, G. | N. C. | 500,000 | 500,000 | 1 | |
| 39 | Dahlonega, G. | Ga. | 250,000 | 250,000 | 1 | * |
| 40 | Dandy, S. | Colo. | 5,000,000 | 500,000 | 10 | |
| 41 | Decatur, S. | Colo. | 1,500,000 | 300,000 | 5 | * |
| 42 | Deer Lodge, S. L. | Colo. | 5,000,000 | 500,000 | 10 | * |
| 43 | Denver Gold, G. | Colo. | 300,000 | 60,000 | 5 | |
| 44 | Durango, G. | Colo. | 500,000 | 500,000 | 1 | * |
| 45 | Eastern Dev. Co., Lt. | N. S. | 1,500,000 | 150,000 | 10 | 990,000 Mar . 1886 1.00 |
| 46 | El Cristo, G. S. | U.S.C. | 1,000,000 | 500,000 | 2 | |
| 47 | El Dorado, G. | Cal. | 1,000,000 | 250,000 | 4 | * |
| 48 | El Fuerte, G. | U.S.C. | 1,000,000 | 500,000 | 2 | |
| 49 | Empire, G. | Utah | 10,000,000 | 100,000 | 100 | |
| 50 | Eureka Tunnel, S. L. | Nev. | 10,000,000 | 100,000 | 100 | * |
| 51 | Exchequer | Nev. | 10,000,000 | 100,000 | 100 | 865,000 July. 1890 .25 |
| 52 | Found Treasure, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 81,500 May . 1890 .25 |
| 53 | Gogebic I. Syn., I. | Wis. | 5,600,000 | 200,000 | 25 | |
| 54 | Gold Cup, S. | Colo. | 500,000 | 500,000 | 1 | * |
| 55 | Golden Gate, S. | Mont. | 2,000,000 | 200,000 | 10 | * |
| 56 | Gold Placer, G. | Colo. | 5,000,000 | 200,000 | 25 | 229,314 Dec.. 1885 .25 |
| 57 | Gold Rock, G. | Cal. | 1,000,000 | 500,000 | 2 | * |
| 58 | Goodshaw, G. | Cal. | 10,000,000 | 100,000 | 100 | * |
| 59 | Grand Belt, C. | Tex. | 12,000,000 | 120,000 | 100 | |
| 60 | Grand Duke | Colo. | 800,000 | 80,000 | 10 | |
| 61 | Grand Romance, G. | U.S.C. | 1,000,000 | 500,000 | 2 | * |
| 62 | Gregory-Sobtail, G. | Colo. | 550,000 | 550,000 | 1 | * |
| 63 | Gregory Con., G. | Mont. | 3,000,000 | 300,000 | 10 | |
| 64 | Hariem M. & M. Co.,G. | Cal. | 1,000,000 | 200,000 | 5 | |
| 65 | Head Cent. & Tr., S. G. | Ariz. | 10,000,000 | 100,000 | 100 | |
| 66 | Hector, G. | Cal. | 1,500,000 | 300,000 | 5 | 45,000 Jan.. 1889 .15 |
| 67 | Highland, C. | Mich. | 500,000 | 25,000 | 20 | |
| 68 | Holyoke, Cal. | Cal. | 200,000 | 100,000 | 2 | |
| 69 | Hortense, S. | Colo. | 2,000,000 | 200,000 | 10 | |
| 70 | Huron, C. | Mich. | 1,000,000 | 40,000 | 25 | 280,000 May . 1887 3.00 |
| 71 | Iron, Gold & Silver, S. | N. M. | 2,000,000 | 200,000 | 10 | * |
| 72 | Ironton, I. | Wis. | 1,000,000 | 40,000 | 25 | |
| 73 | Iroquois, C. | Mich. | 1,250,000 | 50,000 | 25 | |
| 74 | J. L. Reymert | Ariz. | 10,000,000 | 100,000 | 100 | |
| 75 | Julia Consg. G. S. | Nev. | 11,000,000 | 110,000 | 100 | 1,463,000 Jan.. 1889 .10 |
| 76 | Lacrosse, G. | Colo. | 1,000,000 | 100,000 | 10 | * |
| 77 | Lee Basin, S. L. | Colo. | 5,000,000 | 500,000 | 10 | * |
| 78 | Mayflower Gravel. | Cal. | 1,000,000 | 100,000 | 10 | 585,000 Mar . 1890 .56 |
| 79 | Medora, G. | Dak. | 250,000 | 250,000 | 1 | |
| 80 | Mexican, G. S. | Nev. | 10,000,000 | 100,000 | 100 | 2,791,963 Oct.. 1890 .25 |
| 81 | Middle Bar, G. | Cal. | 400,000 | 200,000 | 2 | * |
| 82 | Mike & Starr, S. L. | Colo. | 1,000,000 | 200,000 | 5 | * |
| 83 | Mollie Gibson | Colo. | 2,000,000 | 100,000 | 2 | |
| 84 | Monitor, G. | Colo. | 100,000 | 1,000,000 | 1 | * |
| 85 | Mutual Mg. & Sm. | W'sh. | 100,000 | 100,000 | 1 | * |
| 86 | Native, C. | Mich. | 1,000,000 | 40,000 | 25 | |
| 87 | Neath, G. | Colo. | 1,000,000 | 100,000 | 10 | |
| 88 | Nevada Queen, S. | Nev. | 10,000,000 | 100,000 | 100 | 200,000 Oct.. 1889 .25 |
| 89 | New Germany, G. | N. S. | 100,000 | 100,000 | 1 | * |
| 90 | New Pittsburg, S. L. | Colo. | 2,000,000 | 200,000 | 10 | * |
| 91 | N. Commonw'h, S. | Nev. | 10,000,000 | 100,000 | 100 | 85,000 April 1890 .25 |
| 92 | North Standard, G. | Cal. | 10,000,000 | 100,000 | 100 | 20,000 Nov . |
| 93 | Noonday | Cal. | 600,000 | 60,000 | 10 | 208,000 Dec.. 1881 .10 |
| 94 | Oneida Chief, S. | Cal. | 500,000 | 125,000 | 100 | * |
| 95 | Oriental & Miller, S. | Nev. | 10,000,000 | 400,000 | 25 | |
| 96 | Osceola, G. | Nev. | 5,000,000 | 500,000 | 10 | * |
| 97 | Overman, G. S. | Nev. | 11,520,000 | 115,200 | 100 | 3,832,800 Dec.. 1889 .25 |
| 98 | Park, S. | Utah | 2,000,000 | 200,000 | 10 | |
| 99 | Peer, S. | Ariz. | 10,000,000 | 100,000 | 100 | 165,000 Aug.. 1890 .10 |
| 100 | Peerless, S. | Ariz. | 10,000,000 | 100,000 | 100 | 405,000 Aug.. 1890 .15 |
| 101 | Phœnix, G. | Ariz. | 500,000 | 500,000 | 1 | * |
| 102 | Phœnix, G. S. | Ark. | 5,000,000 | 200,000 | 25 | * |
| 103 | Phœnix Lead, S. L. | Colo. | 100,000 | 100,000 | 1 | * |
| 104 | Pilgrim, G. | Cal. | 600,000 | 300,000 | 2 | * |
| 105 | Potosi, S. | Nev. | 11,200,000 | 112,000 | 100 | 1,573,000 Mar.. 1890 .50 |
| 106 | Proustite, S. | Idaho | 250,000 | 250,000 | 1 | * |
| 107 | Puritan, S. G. | Colo. | 1,500,000 | 150,000 | 10 | * |
| 108 | Quincy | Colo. | 3,000,000 | 300,000 | 10 | |
| 109 | Rappahannock, G. S. | Va. | 250,000 | 250,000 | 1 | * |
| 110 | Red Elephant, S. | Colo. | 500,000 | 500,000 | 1 | * |
| 111 | Ropes, G. S. | Mich. | 2,000,000 | 80,000 | 25 | 147,200 July. 1887 .50 |
| 112 | Russell, G. | N. C. | 1,500,000 | 300,000 | 5 | |
| 113 | Sampson, G. S. L. | Utah | 10,000,000 | 100,000 | 100 | 288,157 July. 1888 1.08 |
| 114 | San Sebastian, G. | San S. | 1,600,000 | 320,000 | 5 | * |
| 115 | Santa Fe, C. | N. M. | 5,000,000 | 500,000 | 10 | |
| 116 | Santiago, G. | U.S.C. | 400,000 | 200,000 | 2 | * |
| 117 | Security, S. | Colo. | 10,000,000 | 1,000,000 | 10 | |
| 118 | Sheridan | N. M. | 2,000,000 | 200,000 | 10 | |
| 119 | Silver Queen, C. | Ariz. | 5,000,000 | 200,000 | 25 | * |
| 120 | Silver Queen, G. | Cal. | 10,000,000 | 100,000 | 100 | 100,000 May . 1881 .25 |
| 121 | South Hite | Cal. | 10,000,000 | 100,000 | 100 | 195,000 Jan.. 1883 .05 |
| 122 | South Pacific | Cal. | 500,000 | 100,000 | 5 | |
| 123 | Stanislaus, G. | Cal. | 2,000,000 | 200,000 | 10 | |
| 124 | St. Kevin, G. S. | Colo. | 100,000 | 100,000 | 1 | * |
| 125 | St. Louis & Mex., S. | Mex. | 5,000,000 | 500,000 | 10 | * |
| 126 | St. Louis & St. Elmo | Colo. | 2,000,000 | 200,000 | 10 | |
| 127 | St. L. & St. Felipe, G. S. | Mex. | 1,500,000 | 150,000 | 10 | |
| 128 | St. L. & Sonora, G. S. | Mex. | 1,500,000 | 150,000 | 10 | |
| 129 | St. Louis-Yavapai | Ariz. | 3,000,000 | 300,000 | 10 | * |
| 130 | Sunday Lake, I. | Mich. | 1,250,000 | 50,000 | 25 | |
| 131 | Sullivan Con., G. | Dak. | 600,000 | 200,000 | 3 | * |
| 132 | Sutter Creek, G. | Cal. | 500,000 | 100,000 | 5 | |
| 133 | Sutro Tunnel | Nev. | 20,000,000 | 2,000,000 | 10 | * |
| 134 | Sylvanite, S. | Colo. | 5,000,000 | 500,000 | 10 | * |
| 135 | Taylor-Plumas, G. | Cal. | 1,000,000 | 200,000 | 5 | 10,000 Feb.. 1888 .10 |
| 136 | Tioga Con., G. | Cal. | 10,000,000 | 100,000 | 10 | 295,000 May . 1888 .25 |
| 137 | Tornado Con., G. S. | Nev. | 100,000 | 100,000 | 1 | * |
| 138 | Tortilita, G. S. | Ariz. | 1,000,000 | 100,000 | 110 | * |
| 139 | Tuscarora, S

# NEW YORK MINING STOCKS QUOTATIONS.

## DIVIDEND-PAYING MINES.

| Name and Location of Company. | Oct. 25. | | Oct. 27. | | Oct. 28. | | Oct. 29. | | Oct. 30. | | Oct. 31. | | Sales. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H. | L. | H. | L. | H. | L. | H. | L. | H. | L. | H. | L. | |
| Adams, Colo. | 2.00 | 1.90 | ..... | ..... | 2.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 700 |
| Alice | 2.00 | ..... | ..... | ..... | ..... | ..... | 2.00 | ..... | 2.10 | ..... | ..... | ..... | 500 |
| Atlantic, Mich | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 17.38 | ..... | 100 |
| Belcher, Nev | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Belle Isle | .85 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Bodie Cons., Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Bos. & Mont., Mont | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Breece, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Bulwer, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | .55 | ..... | ..... | ..... | ..... | ..... | 300 |
| Caledonia | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.30 | ..... | 28¼ | ..... | 100 |
| Calumet & Hecla, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 20 |
| Catalpa, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .35 | ..... | ..... | ..... | 500 |
| Chrysolite, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Confidence, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cons. Cal. & Va., Nev. | 4.55 | ..... | 4.60 | ..... | 4.40 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 800 |
| Crown Point, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Deadwood, Dak. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Dunkin, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Eureka Con. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Father de Smet, Dak. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Franklin | 19.13 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Freeland, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Gould & Curry, Nev. | ..... | ..... | 2.50 | ..... | ..... | ..... | 2.50 | ..... | ..... | ..... | 2.35 | ..... | 300 |
| Hale & Norcross, Nev. | 2.15 | ..... | 2.15 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 200 |
| Holyoke | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Homestake, Dak. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 10.00 | 9.25 | ..... | ..... | 210 |
| Horn-Silver, Utah | 3.45 | ..... | 3.45 | ..... | 3.50 | 3.45 | 3.50 | 3.45 | ..... | ..... | ..... | ..... | 1,050 |
| Independence, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Iron Hill, Dak. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Kentuck, Nev. | 2.10 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 200 |
| Leadville C., Colo. | .17 | ..... | .17 | .15 | .16 | ..... | ..... | ..... | .15 | ..... | .15 | ..... | 1,225 |
| Little Chief, Colo. | .33 | ..... | .35 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .31 | ..... | 1,300 |
| Mono, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Moulton, Mont. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Mt. Diablo, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Navajo, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | .45 | ..... | ..... | ..... | .40 | ..... | 600 |
| N. Belle Isle, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ontario, Utah | 42.0. | ..... | ..... | ..... | 39.00 | ..... | 40.00 | 38.50 | ..... | ..... | ..... | ..... | 655 |
| Ophir, Nev. | ..... | ..... | ..... | ..... | 5.00 | ..... | ..... | ..... | ..... | ..... | 4.90 | ..... | 200 |
| Osceola, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Plymouth, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Quicksilver, Pref. | 40.50 | ..... | 41.50 | ..... | 41.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 300 |
| " Com. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Quincy, Mich. | 106½ | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 50 |
| Robinson Cons., Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Savage | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3.00 | ..... | 100 |
| Sierra Nevada, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Silver Cord | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .40 | ..... | .40 | ..... | 1,100 |
| Silver King, Ariz. | .15 | ..... | .18 | ..... | ..... | ..... | ‡.55 | ..... | ..... | ..... | ..... | ..... | 1,300 |
| Silver Mg. of L. V. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Small Hopes | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .90 | ..... | 300 |
| Standard | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Stormont, Utah | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Tamarack, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Yellow Jacket, Nev. | ..... | ..... | ..... | ..... | 3.50 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |

## NON-DIVIDEND-PAYING MINES.

| Name and Location of Company. | Oct. 25. | | Oct. 27. | | Oct. 28. | | Oct. 29. | | Oct. 30. | | Oct. 31. | | Sales. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | H. | L. | H. | L. | H. | L. | H. | L. | H. | L. | H. | L. | |
| Alpha, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Alta, Nev. | 1.60 | 1.55 | ..... | ..... | 1.95 | ..... | 1.55 | ..... | 1.50 | ..... | ..... | ..... | 600 |
| American Flag, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Andes, Nev. | ..... | ..... | 2.60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 2.40 | ..... | 200 |
| Amador, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Astoria, Cal. | .06 | ..... | ..... | ..... | ..... | ..... | .05 | ..... | .06 | ..... | .05 | ..... | 4,100 |
| Barcelona, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Best & Belcher, Nev. | 3.50 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3.35 | ..... | 200 |
| Bonanza King, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Brunswick, Cal. | .06 | ..... | .08 | .07 | .08 | .07 | .08 | ..... | .06 | ..... | .08 | ..... | 30,300 |
| Bullion, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3.20 | ..... | 100 |
| Butte & Bost., Mont. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Castle Creek, Idaho | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Chollar, Nev. | 3.25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 3.20 | ..... | 300 |
| Col. & Beaver, Idaho | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Commonwealth, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Comstock T., Nev. | ..... | ..... | ..... | ..... | .16 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 500 |
| " bonds | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| " scrip | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Con. Imperial, Nev. | ..... | ..... | .45 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 200 |
| Cons. Pacific, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Crescent, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .15 | ..... | ..... | ..... | 300 |
| Denver City, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| El Cristo, Rep. of Col. | .80 | ..... | ..... | ..... | .80 | .75 | ..... | ..... | ..... | ..... | ..... | ..... | 300 |
| Exchequer | 1.55 | ..... | ..... | ..... | ..... | ..... | 1.40 | ..... | ..... | ..... | 1.65 | ..... | 500 |
| Hollywood, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Huron, Mich. | 5.13 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4.88 | ..... | 300 |
| Julia, Nev. | .40 | ..... | .40 | ..... | ..... | ..... | .40 | ..... | .39 | ..... | .40 | ..... | 1,700 |
| Justice, Nev. | 1.60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Kingston & Pembroke | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Lacrosse, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Lee Basin, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Mexican, Nev. | 3.40 | ..... | 3 30 | ..... | 3.15 | ..... | ..... | ..... | ..... | ..... | 3.15 | ..... | 400 |
| Minn. Iron Co. | ..... | ..... | 88 50 | ..... | ..... | ..... | 88.50 | ..... | ..... | ..... | ..... | ..... | 120 |
| Mutual Sm. & Mg. Co. | 1.50 | ..... | 1.50 | ..... | 1.45 | ..... | 1.50 | ..... | 1.50 | ..... | 1.50 | ..... | 1,200 |
| Nevada Queen, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| N. Commonwealth, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Occidental, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | 1.75 | ..... | 1.90 | ..... | 1.80 | ..... | 600 |
| Oriental & Mil., Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Overman, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Phœnix of Ariz. | ..... | ..... | .80 | ..... | .80 | .76 | ..... | ..... | .72 | .70 | .75 | ..... | 2,300 |
| Phœnix Lead, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Potosi | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 6.63 | ..... | 100 |
| Rappahannock, Va. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Santa Fe, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| S. Sebastian | .60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Scorpion | .40 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .40 | ..... | 600 |
| Seg. Belcher, Nev. | 1.45 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Silver Hill | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Silver Queen | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sullivan Con., Dak. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sutro Tunnel, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sutter Creek, Cal. | 1.25 | ..... | 1.25 | ..... | 1.25 | ..... | 1.25 | ..... | 1.25 | ..... | 1.25 | ..... | 900 |
| Union Cons., Nev. | ..... | ..... | ..... | ..... | 3.15 | ..... | 3.05 | ..... | ..... | ..... | 3.00 | ..... | 350 |
| Utah, Nev. | 1.20 | ..... | ..... | ..... | ..... | ..... | 1.25 | ..... | 1.25 | 1.20 | 1.20 | ..... | 1,000 |

* Ex. dividend. † Dealt in at the New York Stock Ex. Unlisted securities. ‡ Assessment paid. § Assessment unpaid. Dividend shares sold, 11,910. Non-dividend shares sold, 47,470. Total, New York, 59,380.

# BOSTON MINING STOCK QUOTATIONS.

| Name of Company. | Oct. 24. | | Oct. 25. | | Oct. 27. | | Oct. 28. | | Oct. 29. | | Oct. 30. | | Sales. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| Atlantic, Mich | 19.38 | 18.75 | 19.25 | 18.50 | 19.00 | 18.75 | 19.00 | 18.00 | 18.00 | 17.00 | 18.00 | 17.00 | 1,425 |
| Bodie, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Bonanza Development. | ..... | ..... | ..... | ..... | .55 | .53 | .55 | ..... | ..... | ..... | ..... | ..... | 600 |
| Bost. & Mont., Mont. | 52.25 | 50.25 | 51.00 | 50.75 | 52.00 | 50.75 | 51.00 | 49.00 | 50.00 | 48.50 | 49.50 | 47.00 | 8,160 |
| Breece, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Calumet & Hecla, Mich. | 290 | 285 | 289 | 285 | 289 | 285 | 287 | 283 | 284 | 280 | 280½ | 280 | 259 |
| Catalpa, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Central, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Chrysolite, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Con. Cal. & Va., Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Dunkin, Colo. | .75 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Eureka, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Franklin, Mich. | 21.00 | 18.75 | 19.00 | ..... | 19.75 | 19.38 | 20.00 | 19.00 | 18.00 | ..... | 17.00 | 16.50 | 1,107 |
| Honorine, Utah | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Horn Silver, Utah | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Kearsarge | 13.00 | ..... | 14.00 | ..... | ..... | ..... | ..... | ..... | 13.00 | 12.50 | 12.50 | 12.00 | 1,532 |
| Little Chief, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Little Pittsburg, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Moulton | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Napa, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 4.25 | ..... | 100 |
| Ontario, Utah | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Osceola, Mich. | 39.50 | 37.75 | 39.00 | 38¾00 | 39.00 | 38.13 | 38.50 | 37.63 | 37.63 | 37.00 | 37.50 | 35.00 | 3,926 |
| Pewabic, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | .15 | ..... | 30 |
| Quincy, Mich. | 102 | 100 | ..... | ..... | 100 | ..... | 100 | ..... | 98.00 | 95.00 | 95.00 | ..... | 190 |
| Ridge, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Sierra Nevada, Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Silver King | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Stormont, Utah | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Tamarack, Mich. | 165 | 158 | 162 | 161 | 172 | 165 | 170 | 167½ | 168 | 165 | 164 | 155 | 963 |

| Name of Company. | Oct. 24. | | Oct. 25. | | Oct. 27. | | Oct. 28. | | Oct. 29. | | Oct. 30. | | Sales. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |
| Allouez, Mich. | 5.25 | 4.25 | 5.25 | 5.00 | 5.25 | 5.00 | 5.00 | 4.13 | 5.00 | 4.25 | 5.00 | 4.50 | 5,275 |
| Arnold, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Aztec, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Brunswick, Cal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Butte & Boston, Mont. | 17.13 | 16.50 | ..... | ..... | 18.00 | 17.00 | 17.50 | 17.00 | 16.50 | ..... | 16.50 | 16.00 | 1,978 |
| Centennial, Mich. | 20.00 | 17.00 | 18.00 | ..... | 19.00 | 16.75 | 18.00 | ..... | 18.00 | 16.75 | 17.00 | 15.00 | 2,161 |
| Comstock, T., Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Copper Falls Mg. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Crescent, Colo. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Dana, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Don Enrique, N. M. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| El Cristo, S. A. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hanover, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Humboldt, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Hungarian, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Huron, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Mesnard, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| National, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 1.50 | ..... | 1.92 | ..... | 200 |
| Native, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Oriental & M., Nev. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Phœnix. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Pontiac. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Rappahannock, Va. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Santa Fe, N. Mex. | .50 | ..... | .50 | ..... | .50 | .45 | .50 | ..... | .50 | ..... | ..... | ..... | 5,650 | ..... | ..... |
| Shoshone, Idaho. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| South Side, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Star. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Washington, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Winthrop, Mich. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

Boston: Dividend shares sold, 18,442. Non-dividend shares sold, 15,224. Total Boston, 33,666.

# COAL STOCKS.

| Name of Company. | Par val. of shares. | Oct. 25. | | Oct. 27. | | Oct. 28. | | Oct. 29. | | Oct. 30. | | Oct 31. | | Sales. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | H. | L. | H. | L. | H. | L. | H. | L. | H. | L. | H. | L. | |
| American Coal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cambria Iron | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cameron Coal & I.Co | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ches. & O. RR | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Chic. & Ind. Coal RR | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Do. pref | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Col. C. & I. | 100 | 45 | 44½ | 45½ | ..... | 45¼ | ..... | 45¼ | 45½ | 45¼ | 44¾ | 46 | ..... | 2,310 |
| Col. & Hocking C. I. | 100 | 24¾ | 24½ | 24¾ | 24½ | 24⅝ | 24½ | 24⅛ | ..... | 24¼ | ..... | 24½ | ..... | 1,800 |
| Consolidation Coal. | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Del. & H. C. | 100 | ..... | ..... | 138½ | 137¾ | 138¼ | ..... | 138¼ | 137½ | 138⅛ | 138 | 138¼ | ..... | 1,373 |
| D., L. & W. RR. | 50 | 143½ | 142¾ | 143⅝ | 142¾ | 143⅝ | 142½ | 143¼ | 142⅝ | 143¾ | 142¼ | 143¾ | 143 | 35,582 |
| Hocking Valley | 100 | 29½ | 29 | 29½ | ..... | 29¼ | ..... | 29¼ | ..... | 29⅜ | ..... | 29¼ | ..... | 1,300 |
| Hunt. & Broad Top. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Do. pref. | ..... | ..... | ..... | 47¼ | ..... | ..... | ..... | 47¼ | ..... | 47 | ..... | ..... | ..... | 47 |
| Illinois C & Coke Co | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Lehigh C. & N | 50 | ..... | ..... | 52 | ..... | 52 | ..... | 52 | ..... | ..... | ..... | ..... | ..... | 53 |
| Lehigh Valley RR | 50 | 51⅝ | 51⅛ | 51⅛ | 51¼ | 51⅜ | 51¼ | 51⅜ | 51¼ | 51¼ | 51⅛ | ..... | ..... | 453 |
| Lehigh & Wilk Coal | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Mahoning Coal. | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 65 | ..... | ..... | ..... | 100 |
| Do. pref. | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 114 | ..... | ..... | ..... | 10 |
| Maryland Coal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Morris & Essex | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| New Central Coal. | 50 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| N. J. C RR | 100 | 111 | ..... | 111 | ..... | 110¾ | 110½ | 110 | 109¼ | 110½ | 110 | 111 | 110½ | 3,850 |
| N. Y. & S. Coal. | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| N. Y., Susq. & West | 100 | 7 | ..... | ..... | ..... | 7 | ..... | 6¾ | ..... | ..... | ..... | ..... | ..... | 325 |
| Do. pref | 100 | ..... | ..... | ..... | ..... | ..... | ..... | 28 | ..... | ..... | ..... | ..... | ..... | 10 |
| N.Y. & Perry C. & I | 100 | 9 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 100 |
| Norfolk & West. RR. | 50 | 17½ | ..... | ..... | ..... | 17¼ | ..... | ..... | ..... | 16¾ | ..... | ..... | ..... | 330 |
| Do. pref | 50 | ..... | ..... | ..... | ..... | 57 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 5 |
| Penn. Coal | 50 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Penn. RR. | 50 | 52⅛ | 52 | 52⅜ | 52¼ | 52⅛ | 52¼ | 52⅜ | 52⅛ | 52⅜ | 52⅛ | ..... | ..... | 2,738 |
| Ph. & R. RR. | ..... | 37½ | 36¾ | 37½ | 36¾ | 37½ | 37⅜ | 37½ | 37 | 37⅜ | 36¾ | 37⅛ | 34¾ | **107,952 |
| Sunday Creek Coal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Do. pref. | 100 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Tennessee C. & I. Co. | ..... | 42 | 41 | 42¼ | 41⅝ | 43¼ | 41⅛ | 41⅛ | 40½ | 41¾ | ..... | ..... | ..... | 2,500 |
| Do. pref. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Westmoreland Coal. | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

**Sales in New York, 69,655; in Philadelphia, 38,297. Total sales, 160,633.

## San Francisco Mining Stock Quotations.

| Company. | Closing Quotations. Oct. 24. | Oct. 25. | Oct. 27. | Oct. 28. | Oct. 29. | Oct. 30. |
|---|---|---|---|---|---|---|
| Alpha | ..... | ..... | ..... | ..... | ..... | ..... |
| Alta | 1.45 | 1.45 | 1.95 | 1.45 | 1.40 | 1.85 |
| Belcher | ..... | ..... | ..... | ..... | ..... | ..... |
| Belle Isle | .90 | .95 | .90 | .85 | .80 | .80 |
| Best & Bel | 3 40 | 3 35 | 3 3 | 3.25 | 3 25 | 3.20 |
| Bodie | 2.50 | 2.50 | 2 35 | 2.60 | 2.45 | 2.25 |
| Bulwer | .45 | .45 | .45 | .5o | .45 | .45 |
| Chollar | 3 15 | 3.20 | 3.20 | 3.20 | 3.05 | 3 10 |
| Com'wealth | 2.50 | 2.70 | 2.65 | 2.50 | 2.50 | 2.50 |
| Con. C. & V. | 4 45 | 4.45 | 4.30 | 4.35 | 4.30 | 4.35 |
| Crown Point | 2.75 | 2.80 | 2.75 | 2.70 | 2.60 | 2.70 |
| D'lMonte, N'v | ..... | .80 | ..... | ..... | ..... | ..... |
| Eureka C | 3.75 | 3.50 | 3.50 | 3.60 | 3.60 | 3.60 |
| Gould & C. | 2.35 | 2.35 | 2.30 | 2 35 | 2.25 | 2 25 |
| Grand Prize | ..... | ..... | ..... | ..... | ..... | ..... |
| Hale & N | 2.20 | 2.05 | 2.00 | 1.90 | 1.85 | 1.85 |
| M. White | ..... | ..... | ..... | ..... | ..... | ..... |
| Mexican | 3.10 | 3.10 | 3.05 | 3.05 | 3.00 | 3.00 |
| Mono | 1.25 | 1.25 | 1.25 | 1.40 | 1.25 | 1.20 |
| Mt. Diablo | ..... | ..... | ..... | ..... | ..... | 2.15 |
| Navajo | .40 | .45

## STOCK MARKET QUOTATIONS.

### Baltimore, Md.

| COMPANY. | Bid. L. H. | Asked. L. H. |
|---|---|---|
| Atlantic Coal | $ .... | $1.50 |
| Balt. & N. C. | .12@ .13 | .15@ .16 |
| Big Vein Coal | .70@ .79 | .80@1.00 |
| Conrad Hill | .... | .10 |
| Cons. Coal | .26¼@ .27 | .28 |
| Diamond Tunnel | .... | .40 |
| George's Crk. C. | 1.13 | 1.15 |
| Lake Chrome | .10 | .... |
| Maryland & Charlotte | .... | .... |
| North State | .10 | .... |
| Silver Valley | .60@ .70 | .67@ .75 |

Prices bid and asked, lowest and highest, during the week ending October 30.

### Birmingham, Ala.

| COMPANY. | Bid. L. H. | Asked. L. H. |
|---|---|---|
| Ala. Coal & I. Co. | .... | $100 |
| Ala. Conn. C. & C. Co. | .... | $23 |
| Ala. R. Mill Co | $60 | .... |
| *Alice Furnace | $103 | .... |
| Anna Howe G. Mg. Co. | $3½ | $7½ |
| Bessemer Land | $34½ | $36@$37 |
| Bir. Mg. & Mfg. | $34 | $65 |
| Cahaba Coal Mg. Co. | .... | $70 |
| Camille Gold Mg. Co. | $1½ | .... |
| De Bardeleben C. & I. Co. | .... | $64 |
| Decat. L. Imp. | $12 | .... |
| Decatur Min. L. | $21 | .... |
| Ensley Land | $9 | $10 |
| *Eureka | **$99 | $102½ |
| Florence L. & Mg. Co. | $20 | $21 |
| Gadsen Land | .... | $47½ |
| Hecla Coal Co. | $10 | .... |
| Hen. S. & M. Co. | .... | $61 |
| Jagger-Townl'y C. & C. Co. | $3½ | $10 |
| Mag-Ellen | $100 | .... |
| Mary Lee C. & R. Co. | $25 | .... |
| Sheffield C. & I. Co. | $50 | $53¼ |
| Sloss I. & S. | .... | $40 |
| †Sloss I. & S. | $90¼ | $93 |
| ‡‡ Sloss I. & S. | $45 | $50 |
| Tuscaloose C. I. & L. Co. | $22 | .... |
| Ten. C. & I. Co. | $13 | .... |
| " pref. | $90 | .... |
| Vulcan C. & C. Co | $5 | .... |
| Woodstock I. Co. | .... | $30 |

Prices, highest and lowest, bid and asked during week ending October 27.
* Bonds. † First mortgage. ‡ Second mortgage. ** Without interest.

### St. Louis. Oct. 29.

CLOSING PRICES.

| COMPANY. | Bid. | Asked. |
|---|---|---|
| Adams, Colo. | $2.00 | $2.25 |
| American & Nettie | 1.00 | 1.02½ |
| Aztec, N. Mex. | .... | .10 |
| Bi Metallic | .... | .... |
| Central Silver | .20 | .21¼ |
| Cleveland, Colo. | .04½ | .06 |
| Cleveland & An'r. | .06 | .... |
| Coeur d'Alene | 1.10 | .... |
| Elizabeth | .... | .... |
| Gold King | .12½ | 15 |
| Granite Mountain, Mont. | 45.50 | 46.50 |
| Hope | 1.85 | .... |
| Ingram | .45 | .... |
| I. X. L. Colo. | .... | .... |
| La Union | .08 | .09 |
| Little Albert | .17½ | .... |
| Montrose Placer, Colo. | .52½ | .60 |
| Major Budd, Mont. | .05 | .07 |
| Mexican Imp. | .... | .... |
| Mickey Breen | 1.60 | 1.70 |
| Mountain Key | .40 | .45 |
| Nellie | .... | .... |
| Old Colony | .... | .... |
| Pat Murphy, Colo. | .11½ | .12½ |
| Puzzle | .... | .... |
| Richmond Hill | .... | .... |
| Samoa | .... | .... |
| Silver Age, Colo. | 1.75 | 2 05 |
| Small Hopes, Colo. | .85 | .90 |
| Tourtelotte | .... | .01 |
| West Granite, Mont. | .... | .... |
| Wire Patch | .11 | .15 |
| Yuma, Ariz. | .43¾ | .46¼ |

### Trust Stocks. Oct. 31.

The following closing quotations are reported to-day by C. I. Hudson & Co., members of New York Stock Exchange:

CERTIFICATES.

| | |
|---|---|
| Am. Cotton Oil. Tr. Repts. | $17½@$18 |
| Cattle Trust | @ 14 |
| Distillers' & Cattle Feeders'. | 45 @ 45½ |
| Linseed Oil | 46 @ 47½ |
| National Lead | 19½@ 19¾ |
| Standard Oil | 166 @167 |
| Sugar Refineries. | 67⅝@ 67¾ |

Sales at the New York Stock Exchange week ending Oct. 31:

| | Sales. | Price H. | Price L. |
|---|---|---|---|
| *American Cotton Oil | 160 | 20⅛ | 19 |
| National Lead | 15,733 | 20 | 19 |
| Sugar | 382,642 | 72¼ | 64½ |

*Trust receipts.

### Foreign Quotations.

| COMPANY. | London. Highest. | Oct. 18. Lowest. |
|---|---|---|
| Almada, Mex. | 1s. 3d. | 9d. |
| Amador, Cal. | 7s. | 5s. |
| Appalachian, N. C. | 9d. | 3d. |
| Canadian Phos., Can. | £1½ | £1¼ |
| Colorado, Colo. | 3s 6d. | 3s. 3d. |
| Comstock, Utah. | .... | .... |
| Cordova | .... | .... |
| Cons. Esmeralda, Nev. | 2s. 9d. | 2s. 3d. |
| Denver Gold, Colo. | 6d. | .. |
| Dickens Custer, Idaho. | 1s. | 6d. |
| East Arevalo, Idaho. | 2s. | 1s. |
| El Callao, Venezuela. | £2 | £1¾ |
| Elmore, Idaho | 2s. 6d. | 2s. |
| Garfield, Nev | 2s. | 1s. |
| Jay Hawk, Mont. | 2s. | 1s. 6d. |
| Josephine, Cal. | 1s. 6d. | 6d. |
| Kohinoor, Colo. | 2s. 3d. | 1s. 9d. |
| La Luz, Mex | 1s. 6d. | 1s. |
| La Valera, Mex. | 20s. | 15s. |
| Montana Lt., Mont. | 21s. | 20s. |
| New California, Colo. | 6s. 6d. | 6s. |
| New Consolidated | 5d. | 3d. |
| New Eberhardt, Nev. | 1s. 3d. | 9d. |
| New Emma, S. Utah. | 4s. 3d. | 3s. 9d. |
| New Flagstaff, Utah. | .... | .... |
| Newfoundland, N. F. | 3s. 6d. | 3s. |
| N. Gold Hill, N. C. | 1s. | 6d. |
| New Guston Colo. | £4 | £3½ |
| New Hoover Hill, N.C. | 1s. | 6d. |
| Old Lout, Colo | 4⅝ | 4⅜ |
| Palmarejo, Mex. | 16s. | 15s. |
| Pinos Altos, Mex. | 13s. | 12s. |
| Pittsburg Cons., Nev. | 8s. 6d. | 7s. 6d. |
| Richmond Con, Nev. | £1 | £¾ |
| Ruby & Dunderb'g, Nev. | 1s. 6d. | 1s. |
| Sam Cristan, N. C. | 1s. | 6d. |
| Sierra Buttes, Cal. | 6s. | 5s. |
| " Plumas Eur., Cal. | £11-16 | £9-16 |
| Sonora, Mex. | 1s. | 6d. |
| United Mexican, Mex. | 8s. | 7s. |
| U. S. Placer, Colo. | 1s. 3d. | 9d. |
| Viola Lt., Idaho | 1s. 6d. | 1s. |

Highest and lowest prices during the week ending October 18.

| Paris. | Oct. 16. Francs. |
|---|---|
| Belmez, Spain | 775.00 |
| Callao, Venez | 56.25 |
| Callao Bis., Venez | 6.50 |
| East Oregon, Ore | 5.75 |
| Forest Hill Divide, Cal. | 95.00 |
| Golden River, Cal | 130.00 |
| " parts | 30.00 |
| Lexington, Mont | 120.00 |
| " parts | 4 00 |
| Rio Tinto, Spain | 637.50 |
| Tharsis, Spain | 156.50 |

## CURRENT PRICES.

Those quotations are for wholesale lots in New York.

### CHEMICALS AND MINERALS.

**Acid**—Acetic, ℔ 100 lbs. $1.75@$2.00
Muriatic, 18° ℔ 100 lbs. 1.00@1.50
Muriatic, 20° ℔ 100 lbs. 1.12½@1 75
Muriatic, 22° ℔ 100 lbs. 1.37½@2.00
Nitric, 36° ℔ 100 lbs. 4.00@4.29
Nitric, 42° ℔ 100 lbs. 6.00@6.25
Oxalic, ℔ 100 lbs. 6.50@10.50
Sulphuric, 60° ℔ 100 lbs. 80@1.25
Sulphuric, 66° ℔ 100 lbs. 1.00@1.75

**Alkali**—
Refined, 48 p. c. 2¾
Refined, 58° 2¾@3
**Alum**—Lump, ℔ lb. 1¾
Ground, ℔ lb. 1¾@2
Lump ℔ ton, Liverpool £4 17 6
Sulphate of Alumina, ℔ ton £4 10
**Ammonia**—Sul., ℔ 100 lbs. 3.15
Carb, ℔ lb. 7¼@8½
**Aqua Ammonia**—18° ℔ lb. 4¾
20°, ℔ lb. 6
22°, ℔ lb. 6@7
26°, ℔ lb. 10@11
**Ammoniates**—Azotine, ℔ unit 1 95@ 2 00
Blood, dried, red, ℔ unit, west 1 80@ 1 90
low grade, ℔ unit. 1 70@ 1 80
Concentrated tankage, ℔ unit 1 75@ 1 80
Bones, rough, ℔ ton 20 00@23 00
ground, ℔ ton 25 00@28 00
Bone black, refuse, ℔ ton 17 50@19 50
Kieserite 6 00@ 6 50
Fish guano, dried 18 50@19 00
acidulated 10 00@— 00
wet 8 50@ 9 50
Phosphate rock, f.o.b Char'n— —@— —
undried —@ 6 —
dried 7 00@ 7 50
ground 8 00@11 50
Acid phosphate, 14% per unit. 7½@ 75
**Arsenic**—White, powdered ℔ lb. 3¼@3½
Red ℔ lb. 5¾@ 6
White at Plymouth, ℔ ton £12 2 6
**Asbestos**—Am., ℔ ton $50@$300
Italian, ℔ on. c. i. f. L'pool £18@£60
**Ashes**—Pot, 1st sorts, ℔ lb. 4¾@4⅞
Pearl 6¼@6½
**Asphaltum**—P. ton 13.00
Prime Cuban, ℔ lb. 4½@5½c.
Hard Cuban, P ton $28.00
Trinidad, refined, ℔ ton $30.00
Egyptian 8@3
**Barium**—Nitrate, ℔ lb. 8@8½
**Barytes**—Sulph., Am. prime white 17@20
Sulph., foreign, floated, ℔ ton. 19½@21.50
Sulph., off color, ℔ ton 11.50@14.00
Carb., lump, f. o. b. L'pool, ton £6
No. 1, Casks, Runcorn, " " £4 10 0
No. 2, bags, Runcorn, " " 3 15 0
**Bleach**—Over 35 p. c., ℔ lb. 1.57½@1.60
**Borax**—Refined, ℔ lb. 9½@9⅝
Concentrated 7¾@8⅜
Refined " Liverpool ℔ ton £29
**Brimstone**—*See Sulphur.*
**Bromine**—℔ lb. 37@38
**Chalk**—℔ ton 1.75
Precipitated, ℔ lb. 4½@5
**China Clay**—English, ℔ ton 13.50@18.50
Southern, ℔ ton 13.50
**Chrome Yellow**—℔ lb. 10@2
**Cobalt**—Oxide, ℔ lb. 2.60@2.90
**Copper**—Sulph. English Wks. ton £20@£21
**Copperas**—Common, ℔ 100 lbs. 70
Best, ℔ 100 lbs. 75@1.00
Liverpool, ℔ ton, in casks. £1 15s.
**Cream of Tartar**—Am. 99%. 22½
Powdered, 99 p. c. 23
**Emery**—Grain, ℔ lb. 4½@5
Flour, ℔ lb. 2¾@3½
**Feldspar**—Ground, ℔ ton 15.00
**Fuller's Earth**—Lump, ℔ bbl. 90@95
Powdered, ℔ lb. 1¾@2
**Gypsum**—Calcined, ℔ bbl. 1.25@1.50
**Iodine**—Resublimed 2.75
**Kainit**—℔ ton $9.75@$10
**Kaolin**—*See China Clay.*
**Lead**—Red, ℔ lb. 6¾@9
White, American, in oil, ℔ lb. 6¾@7¼
White, English, ℔ lb. 8½@8¾
Acetate, or sugar of, white 12@13
Nitrate 9@10
**Lime Acetate**—Amer. Brown .95@1.00
" Gray 1.75@1.87½
**Litharge**—Powdered, ℔ lb. 6½@6¾
English flake, ℔ lb. 9@9½
**Magnesite**—Greek, ℔ ton 20.00
**Manganese**—Crude, per unit. 23@28
Oxide, ground, per lb. 2½@6½
**Mercurie Chloride**—(*Corrosive Sublimate*) ℔ lb. 70@72
**Metallic Paint**—Brown per ton. $20@25
Red $20@25
**Mineral Wool**—℔ lb. 2
**Mica**—In sheets according to size.
1st quality, ℔ lb. 25@$6.00
**Naphtha**—Black 60
**Ochre**—Yellow, "B. F.," ℔ ton, f. o. b. mill. 30.00
"J. F. L. S.," ℔ lb. ex dock 2½
Yellow 10@25
Rochelle 1.35@1.50
Washed Dutch 5@—
Washed French 1½@2½
Washed Nat Oxford, Lump 6¼@6¾
Washed Nat Oxford, Powder 7@7½
Golden 3¾@4
Domestic ¾@1¼
Domestic, for O. C. & W. P. ⅝@1
**Oils, Mineral**—
Cylinder, light filtered 15@20
Dark filtered 14@21
Extra cold test —@—
Dark steam refined 10@18
**Phosphate Rock**—S. Carolina, per ton f. o. b. Charleston 6.00@7.25
Ground, ex vessel New York 11.00
Canadian Apatite, lump, f. o. b. at Montreal, ℔ ton 16.00
**Phosphorus**—℔ lb. 64@65
Precip., red 100@102
white 100@103
**Plumbago**—Ceylon, ℔ lb. 4@5
American, ℔ lb. 5@7
**Potassium**—Cyanide, ℔ lb 39@40
Bromide, ℔ lb 33
Chlorate, English, ℔ lb. 11@14
Chlorate, powdered 13@14
Carb, ℔ lb. 4.70@5.54
Caustic, ℔ lb. 7½@8
Iodide 2.65@2.70
Muriate, ℔ 100 lbs. 1.77½@1.82½
Nitrate, refined, ℔ lb 6@8
Bichromate, ℔ lb. 10½@11
Dble. m'ure salt, basis of 48@50%, 1.12@1.20
Sulphate, basis of 90% ℔ 100 lbs. 2.02½@2.05
Yellow Prussiate 17½@18
Red Prussiate 42@45
**Pumice Stone**—Select lumps, ℔ 3¼
Original cks., ℔ lb. 1¾@2
Powdered, pure, ℔ lb. 2¼@2½
**Pyrites**—Non-cupreous, p. units 10d.
**Quartz**—Ground, ℔ ton 14.00@16.00
**Rotten Stone**—Powdered, ℔ lb. 3¼@3½
Lump, ℔ lb. 6@10
**Salt**—Liverpool, ground, ℔ sack 75@80
Turk's Island, ℔ bush. 25@28
**Salt Cake** ℔ lb. 60@62½
**Saltpeter**—Crude, ℔ lb. 5¼@5½
Refined, ℔ lb. 6@8
**Silex**, ℔ ton. 14@25
**Soda**—Carb Ash, 48%. $2.90@1.55
" high test 1.50@1.55
Caustic, 48% 1.50@1.55
" high test — @ —
Newcastle, 48% — @ —
" high test 1.50@1.55
Bicarb, English 3.50@3.75
" American 3@3½
Crystal, carbonate 1.95@2.00
Caustic, 60% 3.40@5.50
" 70% 3.15@3.25
" 74% 3.15@3.25
" 77% 3.15@3.20
Sal, English 1.15@1.25
" American 1.10@1.15
Nitrate 1.80@1.85
Prussiate 17½@18
Phosphate 7@18
Stannate 8@15
**Strontium**—Nitrate, ℔ lb. 9@9½
**Sulphur**—Roll, ℔ lb. 1¾
Flour, ℔ lb. 20
Crude Brimstone, 2s., ℔ ton 22 00@23.00
Crude Brimstone, 3ds, ℔ ton 20.50@21.50
**Sylvinit**, 23@27%, S.F.P., per unit. 40@42½
**Talc**—Ground French, ℔ lb. 1¼@1½
Domestic, ℔ ton $18@$20
c. i. f. Liverpool, ℔ ton £4 5
**Terra Alba**—French 80@85
English 75@80
American, No. 1 —@—
American, No. 2 40@50
**Tin**—Crystals 15½@16
Muriate 8@ 3
**Vermillion**—American, ℔ lb. 61
English ℔ lb. 82@85
**Vitriol**—(Blue), Ordinary, ℔ lb. 5½@5⅝
Extra, ℔ lb. 7
**Zinc Oxide**—Am., Dry, ℔ lb. 4½
Antwerp, Red Seal, ℔ lb. 6@6½
Paris, Red Seal, ℔ lb. 6½@7
* Spot.

### THE RARER METALS.

**Aluminum**—(Metallic), per lb. $1.50@$2
Sheet, per lb 2.50
**Arsenic**—(Metallic), per lb .40
**Barium**—(Metallic), per gram .... 4.00
**Bismuth**—(Metallic), per lb. 2 75
**Cadmium**—(Metallic), per lb. 1.00
**Calcium**—(Metallic), per gram .... 10.00
**Cerium**—(Metallic), per gram. .... 7.50
**Chromium**—(Metallic), per gram. 1.00
**Cobalt**—(Metallic), per lb. 6.00
**Didymium**—(Metallic), per gram. 9.00
**Erbium**—(Metallic), per gram .... 7.50
**Gallium**—(Metallic), per gram .... 140.00
**Glucinum**—(Metallic, per gram .. 12.00
**Indium**—(Metallic), per gram. 9.00
**Iridium**—(Metallic), per oz. 7.00
**Lanthanum**—(Metallic), per gr. 10.00
**Lithium**—(Metallic), per gram .... 10.00
**Magnesium** Per lb. 4.50
**Manganese**—(Metallic), per lb. 1.10
Chem. pure, per oz. 10.00
**Molybdenum**—(Metallic), per gm .50
**Niobium**—(Metallic), ger gram ... 5.00
**Osmium**—(Metallic), per oz. 65.00
**Palladium**—(Metallic), per oz. 35.00
**Platinum**—(Metallic), per oz. 15.00
**Potassium**—(Metallic), per lb. 28.00
**Rhodium**—(Metallic), per gram .. 5.00
**Ruthenium**—(Metallic), per gm.. 5 50
**Rubidium**—(Metall c), per gram. 2.00
**Selenium**—(Metallic), per oz. 1.80
**Sodium**—(Metallic), per lb. 2.50
**Strontium**—(Metallic), per gm. .60
**Tantalium** (Metallic), per gram. 9.00
**Telurium**—(Metallic), per lb. 5.00
**Thallium**—(Metallic), per gram .. 25
**Titanium**—(Metallic), per gram .. 2.25
**Thorium**—(Metallic), per gram ... 17.00
**Tungsten**—(Metallic), per oz. 2.25
**Uranium**—(Metallic), per lb. 5.00
**Vanadium**—(Metallic, per gm ... 22.00
**Yttrium**—(Metallic), per gram .... 9.00
**Zirconium**—(Metallic), per oz. .... 65.00

### BUILDING MATERIAL.

**Bricks**—Pale, ℔ 1,000. 3.50@4.00
Jerseys, ℔ 1,000. 5.00@5 50
Up Rivers, ℔ 1,000. 6.25@6.50
Haverstraw seconds, ℔ 1,000 .. 5.50@6.00
Haverstraw firsts, ℔ 1,000. 6.25@7.00
Fronts, nominal, ℔ 1,000 ..
Croton 14.00@16 00
Wilmington 20.00@21.00
Philadelphia @22 00
Trenton @22.00
Baltimore .....
**Building Stone**—Amherst freestone, ℔ cu. ft. 95@1.00
Brownstone, ℔ cu. ft. 1.00@1.35
Granite, rough, ℔ cu. ft. 45@1.25
Granite, Scotch, ℔ cu. ft. 1.00@1.15
**Cement**—Rosendale, ℔ bbl. 85@1.10
Portland, American, ℔ bbl. 2.15@2.45
Portland, foreign, ℔ bbl. 2.40@2.50
Portland, " special brands 2.60@2.85
Roman, ℔ bbl. 2.75@2.90
Keene's coarse, ℔ bbl. 4.50@5.50
Keene's fine, ℔ bbl. 7.25@8 50
**Slate**—Purple and green roofing, ℔ 100 ft. 7.00@7.50
Red roofing, ℔ 100 sq. ft. 12.00
Black roofing, ℔ 100 sq. ft. 4.25@5.50
**Lime**—Rockland, common, ℔ bbl 1.00
Reckland, finishing, ℔ bbl. 1.20
St. John, com. and finish., ℔ bbl. 90@ 95
Glens Falls, com. and fin., ℔ bbl. 85@1.10
**Labor**—Ordinary, ℔ day. 1.50@2.00
* Masons, ℔ day 4.00
Plasterers, ℔ day 4.00
Carpenters, ℔ day 3.50
Plumbers, ℔ day 3.50
Painters, ℔ day 2.50@3.50
Stonesetters, ℔ day 3.50@4.00
Tilelayers, ℔ day 3.50@4.50
Bricklayers, ℔ day 4.00

**THE ENGINEERING AND MINING JOURNAL** will thank any one who will indicate any other articles which might with advantage be quoted in these tables or who will correct any errors which may be found in these quotations.

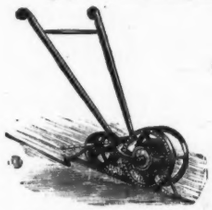
# NEW YORK PRICES CURRENT. NOV. 1, 1890.

In the interest of the extension of the markets for American manufactures the ENGINEERING AND MINING JOURNAL has secured the services of gentlemen thoroughly acquainted with the export trade and with foreign markets, and it offers its services to foreign buyers who may desire information concerning any article whatever of American manufacture. No charge will be made for these services, either directly or indirectly through commissions on goods purchased. The proprietors of the ENGINEERING AND MINING JOURNAL are neither commission merchants nor exporters, but they have many sources of information, both at home and in foreign countries, and place these at the service of manufacturers and exporters here and of importers and consumers in other countries.

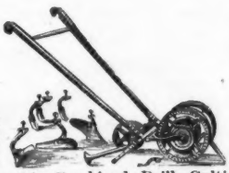
The names and addresses of the manufacturers of goods quoted in this list can be obtained by applying at this office.

**Discounts are for Wholesale Export Only.**

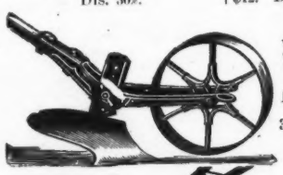
## Agricultural Implements.



"Planet, Jr." No. 2 Seed Drill, $9. Dis. 30%.



Combined Drill Cultivator Rake, Plow, etc., $12. Dis. 30%.

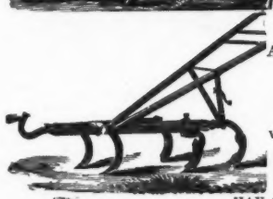


"Fire Fly" single-wheel Hoe, Cultivator and Plow, $5.

"Fire Fly" Hand Plow, $2.50.

30 % discount, f.o.b. New York.

All Steel Horse Hoe and Cultivator combined, with wheel, $6 75-100 net.



All Steel Plain Cultivator.

With wheel, $4.80; without wheel, 60c.

### HAY FORKS.

Standard Spading Forks.
Solid Steel Shanks, Gold Bronze Finish, Patent Overcaps.
Per doz.

8 D 4 light angular tine, iron D, plain ferrules, $17.00.
8 D S 4 light angular tine, iron D, strapped ferrules, $18.50.
11 D 4 light angular tine, iron D, plain ferrules, blue, half polished, $16 00.
13 D 4 light angular tine, iron D, strapped ferrules, blue, half polished, $17.50.
15 D 5 tine, angular tine, iron D, plain ferrules, $24.00.
17 D 5 tine, angular tine, iron D, strapped ferrules, $25.50.

Flat Tines.

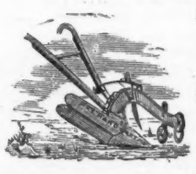
7 D 4 tine spading fork, flat tine, iron D, plain ferrules, $17.00.
7 D S 4 tine spading fork, flat tine, iron D, strapped ferrules, $18.50.
74 4 tine spading fork, flat tine, 4 ft. handles, plain ferrules, $16.00.
74 S 4 tine spading fork, flat tine, 4 ft. handles, strapped ferrules, $17.50.
Dis., 70 and 5%; 2½ cash.

Manure Forks.

4 D, oval, 4 tine, 13 in. tine, iron D, plain ferrules, $13.50.
4 D S, oval, 4 tine, 13 in. tine, iron D, strapped ferrules, $15.00.
5 D, oval, 5 tine, 13 in. tine, iron D, plain ferrules, $20.50.
5 D S, oval, 5 tine, 13 in. tine, iron D, strapped ferrules, $22.00.
6 D oval, 6 tine, 13 in. tine, iron D, plain ferrules, $23.50.
6 D S, oval, 6 tine, 13 in. tine, iron D, strapped ferrules, $25.00.
Dis., 70 and 5%.

### PLOWS.

Reversible Oneonta Clipper.



16. Oneonta Clipper, Reversible, Iron beam Cutter..... $14
" Oneonta Clipper, Reversible, Iron Wheel and Cutter..... 15
18. Oneonta Clipper, Reversible, Iron Beam Cutter..... 15
" Oneonta Clipper, Reversible, Iron Beam, Wheel and Cutter.... 16
17. Hard Metal, Reversible, Iron Beam Cutter..... $17
17. Hard Metal, Reversible, Iron Beam, Wheel and Jointer..... 17
19. Hard Metal, Reversible, Wood Beam Cutter..... 16
" " " " " " Wheel and Jointer..... 17
20. Steel Mould Board, Reversible, Wood Beam Cutter 15
" " " " " " " Wheel and Cutter..... 16

Iron Beam Plows.

Two-horse Sod and Stony Land.... 8.50 plain.
Curtis's Sod Two horse..... 11.50 "
" " " " ..... 13.00 cutter.
" " " " ..... 14.25 wheel & cutter.

Subsoil Plows.

Two-horse 9.50 Draft Rod.
" " 11.00 Wheel and Draft Rod.

Hitchcock's Potato Digger and Shovel Plow.

Improved adjustable handle shovel plow..... 7.00
Hitchcock's Potato Digger..... 8.00
" " " and shovel plow..... 10.50
Dis. 30%.

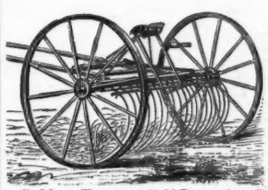
### HOES.

Blade Solid Shank Hoes.

Field, 7 × 5 in., selected handles..$8.00
" 7½ × 4½ " " " .. 8.00
" 8 × 4¾ " " " .. 8.00
" 8½ × 4½ " " " .. 8.00
" 8 × 5 " " " .. 8.00
Washington County Pattern, spring handles..... 10.00
Rhode Island, 7 to 9 in., spr'g handles 9.00
" " 9½ in. " " 9.25
" " 10 " " " 9.50
Meadow, 9 × 4 in., selected handles..... 8.00
Meadow, 9½ × 3½ in., " handles..... 8.25
Meadow, 10 × 3½ in., " handles..... 8.50
Field, 7½ × 4½ in., selected handles..... 8.00
Dis., 60% and 5%.

### RAKES.

The S. R. N. Improved.
22 Teeth Rake, $32.00
26 " " 34.00
25% dis.



Chieftain Lock Lever
No. 1..... $30.00
No. 2. ..... 30.00
No. 5..... 29.00
Iron wheels, $2 extra.
With Pole, Double Tree and Neck Yoke, $2 extra.
22 cubic feet packed, 400 lbs. gro., 225 lbs. net.

Golden Farmer Self-Dumping Rake, $37.00; 22 cu. ft., 430 lbs. gro., 250 lbs. net.
Chieftain Hay Tedders, $59.00; 700 lbs. gro., 450 lbs. net.
Potato Diggers, $7.00; 100 lbs. gro., 60 lbs. net: dis., 40% f.o.b. ship New York or Boston.

### RAKES (GARDEN).

Malleable Iron Garden Rakes, Per Doz.

| | Plain. |
|---|---|
| 8 teeth, 6-ft. handles, straight shank | $5.00 |
| 10 " " " " " | 5.50 |
| 12 " " " " " | 6.00 |
| 14 " " " " " | 6.50 |
| 16 " " " " " | 7.00 |

For braced goods, add 50 cents per dozen to list.

Cast Steel Garden Rakes, Per Doz.

| | Plain. | Braced. |
|---|---|---|
| 8 teeth, 6-ft. handles | $8 00 | $9.50 |
| 10 " " " | 9.00 | 10.50 |
| 12 " " " | 10.00 | 11.50 |
| 14 " " " | 11.00 | 12.50 |
| 16 " " " | 12.00 | 13.50 |

Lawn Rakes and Gravel Rakes same price as Garden Rakes.

Discounts on Rakes from list.

W. & C. Mfg. Co., 70%.
S. F. & T. Co., 70 and 5%.
G. T. Co., 70 and 5%.
Phila. S. H., 60, 10 and 5%.

### SCYTHES (GRASS).

Waldron's pattern, oiled..... $3.50
Silver steel, painted..... 8.50
Western dutchman, bronzed and painted..... 9.00
Clipper, polished web..... 9.00
Fine cutlery steel, full polished..... 10.00
All steel, full polished..... 11.00

Grain Scythes.

Waldron's pattern, oiled..... 11.25
Silver steel, painted..... 11.25
Clover, oiled..... 11.25
Clipper, bronzed and painted..... 11.50

Lawn Scythes.

Clipper, bronzed and painted..... 9.00
Dis., 40 and 10%.

SOWER, BROADCAST SEED.

Per dozen..... $36 f.o.b
Gross wt., 110 pounds per dozen
Net wt., 75 pounds per dozen.

## Anvils.

"Eagle anvils.

| | Weight about | | | Weight about | |
|---|---|---|---|---|---|
| No. 000..... | ½ lb. | $1 00 | No. 4..... | 40 lbs. | $4.25 |
| " 00..... | 4 " | 1.70 | " 5..... | 50 " | 5.05 |
| " 0..... | 10 " | 2.20 | " 6..... | 60 " | 5.50 |
| " 1..... | 15 " | 2.75 | " 7..... | 70 " | 6.00 |
| " 2..... | 20 " | 3.00 | " 8..... | 80 " | 7.00 |
| " 3..... | 30 " | 3.75 | " 9..... | 90 " | 8.00 |

Anvils weighing 100 to 800 lbs., 10 cts. per lb. Discount 20 and 10 %.

## Arms and Ammunition.

Wood Powder.

| | Kegs, 25 lbs. | ¼ kegs. 6¼ lbs. | 1 lb. cans. |
|---|---|---|---|
| Trap for first quality arms only | $19.50 | 5.00 | .85 |
| A, for large bore.....<br>C, for general use.....<br>D, fine for small bore and rifles.....<br>E, very fine for small bore rifles and gallery shooting..... | 17.00 | 4.35 | .75 |

| | Discount. Per cent. | |
|---|---|---|
| Bullet Breech Caps..... per lb. | 1.60 | 10 |
| Corical Bullet Caps..... " | 1.75 | 10 |
| Rim Fire Cartridges..... | 60 | 10 |
| Military Rim Fire Cartridges..... | 15 | 10 |
| Central Fire Pistol and Rifle Cartridges.. | 40 | 10 |
| Central Fire Metallic Cartridges for Target and Sporting Rifles..... | 30 | 10 |
| Military Cartridges, Central Fire..... | 30 | 10 |
| Lefaucheux Cartridges ..... | | 6 |

| | | Special |
|---|---|---|
| Gatling Cartridges..... | | |
| Primed Shells and Bullets..... | 25 | 10 |
| Friction Cannon Primers..... | 20 | 10 |
| Primers..... | | 10 |
| Percussion Caps, F. C .....per M. | 33c. | |
| " U. M. C..... " | 42½c. | |
| " Musket..... " | 45c. | |
| Brass Shot Shells, U. M. C., 1st qual..... | 60 | 10 |
| Club brand..... | 65 | 10 |

Paper Shot Shells.

14, 16 and 20 ga. First quality, 30, 10 and 10 per cent; 4, 8, 10 and 12 ga., First quality, 25, 10 and 10 per cent.
14, 16 and 20 ga. Club brand, 30, 10 and 10 per cent.
10 and 12 ga. Club brand, 33⅓, 10 and 10 per cent.
Gun Wads, 20 and 15 per cent.

### RIFLES.

Colts' Lightning Magazine.

| | | | Discount 10 p cent. |
|---|---|---|---|
| 40/60 and 45/60 calibre octagon barrel... | 10 | lbs. | $15.38 |
| " " " " round | " ... | 9¾ " | 14.25 |
| " " " " carbine | " ... | 9 " | 14.25 |
| 32, 38, and 44 calibres, octagon | " ... | 7¼ " | 13.50 |
| " " " " round | " ... | 6¾ " | 12.38 |
| " " " " carbine | " ... | 6¼ " | 12.38 |
| " " " " baby carbine..... | | 5¼ " | 12.38 |
| 22 calibre, rim fire, octagon barrel..... | | | 15.38 |
| " " round..... | | | 14.25 |

Remington Light (Baby) carbines. 44 cal., nick. $7.50.

### MARLIN RIFLE. MODEL, 1889.

The best in the market, embodying all latest improvements.

38 and 44 calibres, using the same cartridges as Winchester rifles of the respective sizes.

| | | | | |
|---|---|---|---|---|
| ctagon barrel, 24 inch, 6¼ lbs..... | | | | $19.50 |
| " " 26 " 6¾ " ..... | | | | 21.50 |
| " " 28 " 7 " ..... | | | | 23.50 |
| Round " 24 " 6¼ " ..... | | | | 18.50 |
| Carbine 20 " 5½ " ..... | | | | 17.50 |

Discount, 25, 10 and 10%.

### REVOLVERS.

S & W.

32, Single Action, 3, 3¼ in., $8.00.
32, Double Action, 3, 3¼ in., $9.35.
32, Safety Hammerless, 3, 3¼ in., $ .60.

38, Single Action, 3¼ in., $9.40; 38, Single Actio 4 $9.65; 38, Single Action, 5 in., $10.00; 38, Double Acti 3¼ in., $10.40; 38, Double Action, 4 in., $10.65; 38, Double Action, 5 in., $11.00; 38, Safety Hammerless, 3¼ in., $12.00; 38, Safety Hammerless, 4 in., $12.25; 38, Safety Hammerless, 5 in., $12.50; 44, Single Action, 4 in., $11.50; 44, Single Action, 5 in., $11.75; 44, Single Action, 6, 6¼

in., $12.00; 44, Double Action, 4 in., $12.50; 44, Double Action, 5 in., $12.75; 44, Double Action, 6½ in., $13.00; 44, Double Action Favorite, 5 in., $12.75.

Colts.

Discount, 10 per cent from following prices.

Double Action Army, 44 and 45 calibre, 4¾, 5½, 7½ inch bbl., $13.00.
Double Action, 41 calibre, 2½ to 6 inch bbl., $11.20.
" " 38 " 2½ to 6 " " $10.00.
Single " Army, 45 calibre, 4¾, 5½, and 7½ inch bbl., $12.00.
Single Action Army, 44 calibre, "Frontier," 4¾, 5½, and 7½ inch bbl., $12.00.
New Line, 41 calibre, blued or nickeled, $4.00.
" " 32 " " " 4.00.
" " 30 " " " 2.00.
" " 22 " half or full plate, 2.10.
Old Model, 22 calibre, by the hundred, half or full plate, $1.50.
Colt Deringer. 41 calibre, per pair half or full plate, 5.50.

American Bull Dog

Double Action 32, 38 and 44 calibre, 2½ inch barrel, $1.60; Double Action 32, 38 and 44 calibre, 4½ inch barrel, $1.85; Double Action 32, 38 and 44 calibre, 6 inch barrel, $2.10.

F. & W. British Bull Dog revolvers, 32 and 38 calibre 2½ inch bbl., $1.80.
F. & W. Automatic revolver, 32 and 38 calibre, 3¼ inch bbl., $5.50.
H. & R. Automatic revolver, 32 and 38 calibre, 3¼ inch bbl., $4.75.
Defender revolvers, Single Action, 22, wood handle, 65.
" " " " 22, rubber " 70.
" " " " 32, wood " 85.
" " " " 32, rubber " 90.
Remington Army revolver, Single Action, 44 cal., frontier cartridge, 5¾ inch barrel, $6.50.
Remington Army revolver, Single Action, 44 cal., frontier cartridge, 7½ inch barrel, $6.00.
Remington Double Deringers, 41 cal., rim fire, $4.05.
National Deringers, 41 calibre, per pair, half or full plate, $4.00.
New House, 41 or 38 calibre, blued or nickeled, $5.00.
" Police, 38 calibre, 6 in., " " 7.00.
" " 38 " 4½ in., " " 7.00.

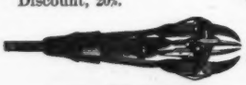
**Asbestos Goods.**

Patent air-space coverings. Per sq. ft., 25c. Discount, 20%.

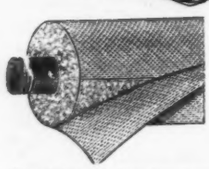
THE PATENT "AIR-SPACE" COVERING.

Wick packing, per pound, 50c. Discount, 20%.

Removable pipe coverings. } Sq. ft. 20c. Disc., 20%.



Tube cleaner, "The National." Per inch, $1. Discount, 50%.



Fire felt covering for steam pipes. Per sq. ft., 25c. Discount, 20%.

Piston Packing. Per pound, 50c. Discount, 20%.

| | | | | |
|---|---|---|---|---|
| Asbestos fibre for filtering | per | lb. | 40c. | disc 20% |
| " Cord and Sewing Twine | " | " | $1.50 | " 20% |
| Asbestos cloth, 36 inches wide | per | yard | 2.00 | " 20% |
| " cement for boilers | per | bbl. | 4.00 | " 25% |
| " shea hing | per | lb. | .18 | " 20% |
| " building felt | " | " | .14 | " 20% |
| " hair felt for hot and cold water pipes | per | sq. ft. | .10 | " 25% |
| Asbestos mill board | per | lb. | .18 | " 20% |
| " soldering blocks | per | doz. | 6.25 | " 25% |

**Assay Furnace.**

Hydro-Carbon Blow-Pipe Assay Furnace.



No. 2, Muffle Furnace taking C Battersea Muffle 8x4¼x3 in. $10.00
No. 3, taking F Muffle, 10x6x4 in. 15.00
No. 1, Crucible Furnace, taking Battersea, U or Colorado B Crucible, 4 in. dia. 5½ deep. 4.00
No. 2, taking Battersea E, round, 3 in. dia., 6 deep. 5.00
Blow-Pipe No. 1, with half gallon tank, made of plain, strong sheet metal. $18.00
Blow-Pipe No. 2, with half gallon tank, made entirely of seamless brass. 23.00
Blow-Pipe No. 3, with one gallon tank, otherwise same as No. 2. 26.00
Blow-Pipe No. 1, Muffle Furnace No. 2, and Crucible Furnace No. 1. 32.00
Blow-Pipe No. 2, Muffle Furnace No. 2, and Crucible Furnace No. 1. 37.00

**Axes, etc.**

Axes, Handled.

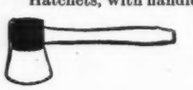
| Brands, | Collins. doz. | Sharp. doz. | Pecks. doz. |
|---|---|---|---|
| Dis., % | 10 | 35 | Net |
| 3½@4½ lbs. | $10.75 | $15.00 | 9.50 |
| 4½@5¼ lbs. | 11.00 | 15.50 | 9.50 |
| 4¼@6 lbs. | 11.50 | 16.00 | 10.00 |
| 5@7 lbs. | 12.50 | 17.50 | 11.00 |

| Brands, | Hurd. doz. Net | American Ideal. doz. Net | Blair. doz. Net. | Freeman. doz. Net |
|---|---|---|---|---|
| 3½@4½ lbs. | $8.50 | $11.00 | $8.00 | $6.50 |
| 4¼@5¼ lbs. | 8.50 | 11.00 | 8.00 | 7.00 |
| 4½@6 lbs. | 8.75 | 11.25 | 8.25 | 7.00 |
| 5@7 lbs. | 9.00 | 11.50 | 8.50 | 7.50 |

| Brands, | Collins. doz. | Sharp. doz. | Pecks. doz. |
|---|---|---|---|
| Dis., % | 10 | 50 | 50 |
| Three-quarter axe | $8.00 | $13.50 | $13.50 | $13.50 |
| Brands, | | | |
| Boys' axe, No. 2 | 8.00 | 13.50 | 13.50 | 13.50 |
| Half axe | 7.00 | 12.50 | 12.50 | 13.00 |
| Quarter axe | 6.50 | 10.00 | 10.00 | 11.00 |

| Brands, | Collins. doz. | Hurd. doz. | Freeman. doz. |
|---|---|---|---|
| Dis., % | 60 5 | 50 5 | 25 |
| Three-quarter axe | $13.50 | $13.50 | $7.50 |
| Boys' axe, No. 2 | 13.50 | 13.50 | 7.50 |
| Half axe | 12.50 | 12.50 | 6.50 |
| Quarter axe | 12.00 | 12.00 | 6.00 |

Hatchets, with handles.



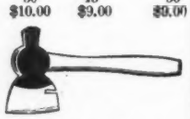
AXE PATTERN.

HUNTER'S.

Both patterns, same price.

| | Collins. | Sharp. | Pecks. | Simmons. |
|---|---|---|---|---|
| Dis., % | 10 | 50 | 45 | 50 |
| Dozen | $6.00 | $10.00 | $9.00 | $9.00 |

SHINGLING.



CLAW.

Shingling.

| Brands, Dis., % | Collins. 10 | Sharp. 50.5 | Pecks. 50 | Mann. 50.5 |
|---|---|---|---|---|
| No. 1 Doz. | $4.75 | $8.00 | $8.00 | $8.00 |
| No. 2 " | 5.25 | 8.50 | 8.50 | 8.50 |
| No. 3 " | 5.75 | 9.00 | 9.00 | 9.00 |

Claw.

| Brands. | Collins. | Sharp. | Blair. | Mann. |
|---|---|---|---|---|
| Dis., % | 10 | 50, 5 | 60, 5 | 50, 5 |
| No. 1. Doz. | $5.25 | $9.00 | $9.00 | $9.00 |
| No. 2. " | 5.75 | 9.50 | 9.50 | 9.50 |
| No. 3. " | 6.25 | 10.00 | 10.00 | 10.00 |

LATHING.

BROAD.

Lathing.

| Brands. | Collins. | Sharp. | Pecks. | Blair. |
|---|---|---|---|---|
| Dis., % | 10 | 50, 5 | 50 | 60, 5 |
| No. 1. Doz. | $4.75 | $6.75 | $8.00 | $8.00 |
| No. 2. " | 5.25 | 7.50 | 8.50 | 8.50 |
| No. 3. " | 5.75 | 8.25 | 9.00 | 9.00 |

Broad.

| Brands. | Collins. | Sharp. | Pecks. | Blair. |
|---|---|---|---|---|
| Dis., % | 10 | 50 | 50 | 60, 5 |
| No. 2. Doz. | | $11.50 | $11.00 | $11.50 |
| No. 3. " | 7.50 | 13.00 | 13.00 | 13.00 |
| No. 4. " | 8.00 | 14.50 | 14.50 | 14.50 |
| No. 5. " | 9.00 | 16.50 | 16.50 | 16.50 |
| No. 6. " | 10.00 | 18.00 | 18.00 | 18.00 |

Broad Axes. Steel polls.

| Brands. | Collins. | Hunt. | Sharp. | Pecks. |
|---|---|---|---|---|
| Dis., % | 10 | 45 | 50 | 45 |
| Dozen | $20.00 | $30.00 | $29.00 | $32.00 |

YANKEE, OR OHIO.



PENNSYLVANIA.



NEW ORLEANS.

| Brands. | Collins. | Sharp. | Pecks. | Blair. | Mann. |
|---|---|---|---|---|---|
| Dis., % | 10 | 50 | 45 | 60, 10 | 50 |
| Dozen | $19.00 | $32.00 | $32.00 | $32.00 | $32.00 |

Handled, extra, $4.

Adzes.

| RAILROAD. Brands. | Collins. | SQUARE HEAD. Hunt. | Sharp. | SHIP CARPENTER'S Pecks. | Hurd. |
|---|---|---|---|---|---|
| Dis., % | 10 | 45 | 50 | 50 | 50, 50 |
| Railr'd, heavy, doz. | $14.00 | $26.00 | $26.00 | $26.00 | $26.00 |
| Flat head " | 15.00 | 24.00 | 24.00 | 24.00 | 24.00 |

| Brands. | Collins. | Hunt. | Sharp. | Pecks. | Hurd. |
|---|---|---|---|---|---|
| Dis., % | 10 | 45 | 50 | 50 | 50, 100 |
| Square head, doz. | $12.50 | $24.00 | $24.00 | $24.00 | $24.00 |

| Brands. | Collins. | Hunt. | Sharp. | Pecks. |
|---|---|---|---|---|
| Dis., % | 10 | 45 | 50 | 45 |
| Ship Carpenter's or Spur Head, doz. | $13.00 | $25.00 | $25.00 | $25.00 |

| Brands. | Collins. | Hunt. | Sharp. |
|---|---|---|---|
| Dis., % | 10 | 45 | 50 |
| Cooper's, handled and bolted, doz. | $16.00 | $27.00 | $25.00 |

**Axle Grease.**

Frazer's (2-lb. tins), per gross. $18.00
2-lb. wooden boxes, " 12.00
Discount, 25 and 5 %.
Dixon's Everlasting, boxes 1 lb., per doz. $1.20
" " 2 lbs., " 2.00

See Oils, page 10.

**Bellows.**

Miner's Bellows: 24 in., $8.50; 26 in., $9.75; 28 in., $11.00; 30 in., $11.25; 32 in., $13.50.
60 and 5% dis.
Standard, each: 18 to 24 in., $10; 28 in., $12; 32 in., $14; 34 in. $16; 36 in., $18; 38 in., $20; 40 in., $23; 44 in., $32.
60 and 5% dis.
Hand Bellows, per doz.: 6 in., plain, $10; fancy, $20; 7 in., plain, $12; fancy, $24; 8 in., plain, $14; fancy, $28; 9 in., plain, $16; fancy, $32; 10 in., plain, $18; fancy, $36.
50% dis.

**Belting.**

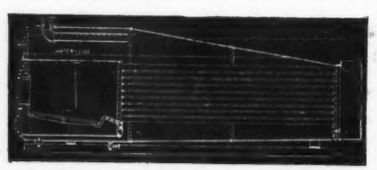
LEATHER BELTS.
Standard Manufacturers List.
Single belts per foot.

| Width. | | Width. | | Width. | |
|---|---|---|---|---|---|
| 1 inch. | 10 | 6 inch. | .76 | 20 inch. | 2.84 |
| 1¼ " | 13 | 7 " | .90 | 21 " | 3.02 |
| 1½ " | 17 | 8 " | 1.02 | 22 " | 3.20 |
| 1¾ " | 20 | 9 " | 1.15 | 23 " | 3.37 |
| 2 " | 23 | 10 " | 1.29 | 24 " | 3.54 |
| 2¼ " | 26 | 11 " | 1.42 | 26 " | 3.92 |
| 2½ " | 30 | 12 " | 1.55 | 28 " | 4.30 |
| 2¾ " | 33 | 13 " | 1.68 | 30 " | 4.64 |
| 3 " | 36 | 14 " | 1.82 | 32 " | 5.00 |
| 3½ " | 43 | 15 " | 1.98 | 34 " | 5.35 |
| 4 " | 50 | 16 " | 2.14 | 36 " | 5.70 |
| 4½ " | 56 | 17 " | 2.31 | 40 " | 6.40 |
| 5 " | 63 | 18 " | 2.49 | 44 " | 7.10 |
| 5½ " | 70 | 19 " | 2.66 | 48 " | 7.80 |

Double belts twice the price of single.
Dis. single and double belts, cemented, 50 and 5%.
Dis. single and double belts, riveted and cemented, 50 and 5%.
Dis. single belts, cemented and lacesewn, water proofed, 50%.
Dis. double belts, cemented and lacesewn, water proofed, 45%.

**Boiler (Scotch Flue).**

Self-contained. Portable. Economical. Durable.



| Horse power | 8 | 10 | 15 | 20 | 25 | 30 | 35 |
|---|---|---|---|---|---|---|---|
| Diameter | 28" | 32" | 32" | 36" | 40" | 40" | 44" |
| Length, feet | 9½ | 10 | 12½ | 13½ | 14¾ | 16¾ | 16¾ |
| Weight, pounds. | 3500 | 4000 | 4500 | 5 00 | 6500 | 6900 | 7500 |
| Price, $ | | | 387 | 487 | 580 | 634 | 767 |

| Horse power | 40 | 45 | 50 | 55 | 60 | 70 | 80 |
|---|---|---|---|---|---|---|---|
| Diameter, inches | 44 | 48 | 48 | 52 | 52 | 56 | 56 |
| Length, feet | 17½ | 16½ | 18 | 17½ | 18½ | 18 | 19 |
| Weight, pounds | 8000 | 8500 | 8800 | 9500 | 10,000 | 11,000 | 12,000 |
| Price, $ | 827 | 920 | 1027 | 1147 | 1227 | 1387 | 1500 |

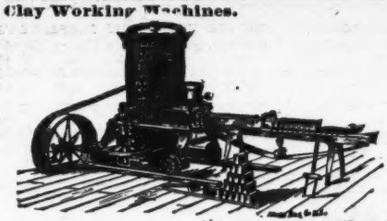
Discount, 15%.



**Brick Machinery.**

| | |
|---|---|
| Heavy Steam Power Machine | $525.00 |
| Horse-Power Machines | 300.00 |
| Additional Horizontal Pugmill | 225.0 |
| Brick Moulds | $2.50 to $3.00 |
| Brick Trucks | 5.00 to 13.50 |
| Brick Barrows | 7.25 |
| Brick Barrows with Springs | 8.20 |
| Sand Barrows, steel tray | 6.40 |

## Clay Working Machines.



| | No. brick per day. | Complete |
|---|---|---|
| No. 10 D brick machine | 50,000 | $1,500 |
| No. 10 S " " | 30,000 | 1,200 |
| No. 4 " " | 40,000 | 1,100 |
| No. 7 S " " | 20,000 | 65[illegible] |
| No. 6 S " " | 15,000 | 57[illegible] |
| No. 2 E. H. P. " | 6,000 | 3,300 |

## Brushes.

PAINT BRUSHES.
Intermediate prices not quoted
Prices per dozen.

| | No. 6. | 4. | 2. | 0. | 3-0. | 5 0. | 7-0. | Dis |
|---|---|---|---|---|---|---|---|---|
| X | $1.15 | $1.80 | $2.50 | $3.15 | $4.00 | $5.25 | $6.75 | 25% |
| Atlantic. | 1.25 | 2.15 | 3.80 | 5.25 | 7.00 | 10.00 | 13.00 | 25% |
| Standard | 1.60 | 2.60 | 4.00 | 6.00 | 8.00 | 11.00 | 16.00 | 25% |

VARNISH OVAL.

| | No. 6. | 4. | 2. | 0. | 3-0. | 5-0. | 7-0. | Dis. |
|---|---|---|---|---|---|---|---|---|
| Globe | $1.15 | $1.80 | $2.50 | $3.25 | $4.60 | $6.00 | $8.00 | 25% |
| Crown | 1.25 | 2.00 | 2.75 | 4.00 | 5.25 | 7.00 | 10.00 | 25% |

VARNISH FLAT.

| | No. 1. | 1½. | 2. | 2½. | 3. | Dis. |
|---|---|---|---|---|---|---|
| X | $0.48 | $0.72 | $0.96 | $1.20 | $1.40 | 25% |

SASH BRUSH.

| | No. 1. | 3. | 5. | 7. | 9. | Dis |
|---|---|---|---|---|---|---|
| X | $0.25 | $0.40 | $0.60 | $0.85 | $1.20 | 25 |
| XX | 0.40 | 0.75 | 1.10 | 1.40 | 2.00 | 25% |

WHITE-WASH.

| | No. 6. | 7. | 8. | Dis |
|---|---|---|---|---|
| Brown | $1.25 | $1.60 | $2.00 | 25% |
| Pure | 2.40 | 4.00 | 6.00 | 25% |

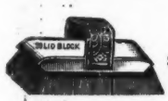
SHOE
Per gross.

| 8. | 9. | 25. | 15. | 26. | Dis |
|---|---|---|---|---|---|
| 10 | $11.50 | $12.50 | $15 | $18 | 25% |

Per gross dis., 25%.

| 27. | 32. | 49. | 35. |
|---|---|---|---|
| $20.00 | $24.00 | $28.00 | $3[illegible].00 |

HORSE.
Patent.
Per gross, dis., 25%.




| $18.00 | $20.00 | $24.00 | $30.0[illegible] |
|---|---|---|---|

Per gross, dis., 25%.

| Wood back | $12 | $15 | $18 | $24 |
|---|---|---|---|---|

Per gross, dis., 25%.

| Leather back. | $24 | $31.50 | $42 | $54 |
|---|---|---|---|---|

SCRUB.
Patent.
Per gross, dis., 25%.

| $12 00 | $16.00 | $18.00 |
|---|---|---|

Per gross, dis., 25%.

| $6.50 | $8.50 | $12 | $14 | $18 |
|---|---|---|---|---|

SHAVING.
Per doz., dis., 25%.

| $0.36 | $0.60 | $1.00 | $1.50 | $2.50 |
|---|---|---|---|---|

COUNTER.

Per doz., dis., 25%.

| $2.00 | $3.00 | $4.00 | $5.00 |
|---|---|---|---|

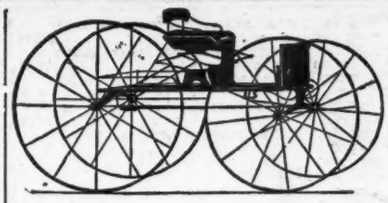
## Carriages, Etc.

Windsor Surrey.
Open, $150.
Canopy top, $180.
Leather extension top, $210
Pole or shafts.

Cut under Surrey.
Canopy top, $185.
Leather extension top, $220

Brewster Spring.
Open, $65.
Rubber top, $80.
Leather top, $110.

Runabout, $65.



Buckboard. $30 .. shafts.

| | |
|---|---|
| No. 0. Cart, top and fenders | $150 |
| No. 1. Cart, top and fenders | 90 |
| No. 2. Cart, one man cart, open | 62 |
| No. 2. Cart, one man, top. | 86 |
| No. 2. Cart, one man, top and fenders | 90 |
| No. 3-H. Cart, two man, open | 54 |
| No 4. Cart, two man, top. | 80 |
| No. 5. Cart, two man, top and fenders | 9[illegible] |
| No. 6. Cart, two men, top and fenders | 90 |
| No. 7. Two man combination cart | 1[illegible] |

Wide track 5 feet.
Narrow track 4 feet 8 inches.
Discount 33⅓ per cent. off.

## Crucibles.

Battersea Crucibles, Triangular.

| No. | Height. Inches. | Width. Inches. | Crucibles. Per doz. | Covers. Per doz. |
|---|---|---|---|---|
| S | 4⅛ | 4⅛ | $1.00 | $0.5[illegible] |
| T | 4 | 3¾ | 0.80 | 0.5 |
| U | 3½ | 3¼ | 0.60 | 0.4 |
| V | 3¼ | 2⅞ | 0.45 | 0.4 |
| W | 2⅞ | 2⅝ | 0.35 | 0.3 |
| X | 2½ | 2¼ | 0.30 | 0.3 |
| Y | 2⅛ | 2⅛ | 0.25 | 0.3 |
| Z | 1¾ | 1¾ | 0.20 | 0.3 |

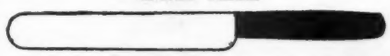
Battersea Muffles, any size, made to order.
See Illustration in advertisement.

| No. | Long. Inches. | Wide. Inches. | High. Inches. | Price. Each. |
|---|---|---|---|---|
| A | 7 | 3½ | 2½ | $ .6 |
| B | 7½ | 4⅜ | 2⅝ | .7 |
| C | 8 | 4¾ | 3 | .8[illegible] |
| D | 8½ | 5 | 3¼ | 1.0 |
| E | 9 | 5½ | 3⅜ | 1.1 |
| F | 10 | 6 | 4 | 1.2 |
| G | 11 | 4 | 3½ | 1.0 |
| H | 10½ | 5¼ | 3⅜ | 1.0 |
| I | 12 | 6 | 4 | 1.2 |
| K | 14 | 8 | 5 | 1.7 |
| L | 15 | 9 | 6 | 2.0 |

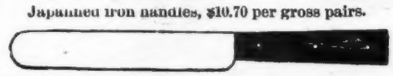
Export discount 15 %.

## Cutlery.

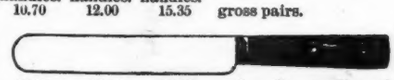
KNIVES—TABLE.



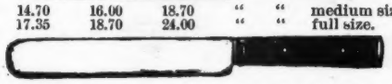
Japanned iron handles, $10.70 per gross pairs.



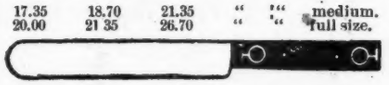
| Cocobola handles. | Ebony handles. | Bone handles. | |
|---|---|---|---|
| 10.70 | 12.00 | 15.35 | gross pairs. |



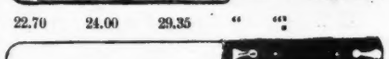
| | | | | | |
|---|---|---|---|---|---|
| 14.70 | 16.00 | 18.70 | " | " | medium size. |
| 17.35 | 18.70 | 24.00 | " | " | full size. |



| | | | | | |
|---|---|---|---|---|---|
| 17.35 | 18.70 | 21.35 | " | " | medium. |
| 20.00 | 21 35 | 26.70 | " | " | full size. |

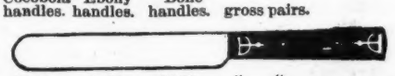


| | | | |
|---|---|---|---|
| 22.70 | 24.00 | 29.35 | " " |

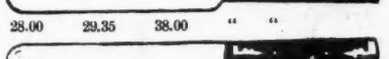


| | | | |
|---|---|---|---|
| 27.35 | 28.70 | 36.00 | |

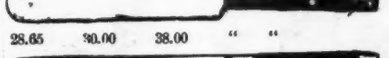
| Cocobola handles. | Ebony handles. | Bone handles. | gross pairs. |
|---|---|---|---|



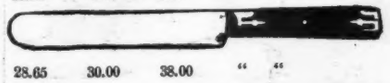
| | | | | |
|---|---|---|---|---|
| 28.00 | 29.35 | 38.00 | " | " |



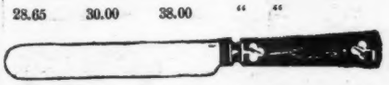
| | | | | |
|---|---|---|---|---|
| 28.65 | 30.00 | 38.00 | " | " |



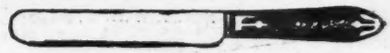
| | | | | |
|---|---|---|---|---|
| 28.65 | 30.00 | 38.00 | " | " |



| | | | | |
|---|---|---|---|---|
| 32.00 | 33.35 | 38.00 | " | " |

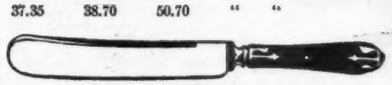


| | | | |
|---|---|---|---|
| 34.70 | 36.00 | 48.00 | " " |

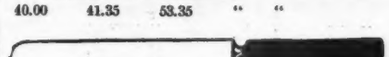


| | | | |
|---|---|---|---|
| 33.35 | 34.70 | 46.70 | Gross pairs. |

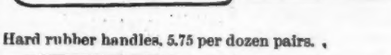
| | | | | |
|---|---|---|---|---|
| 37.35 | 38.70 | 50.70 | " | " |



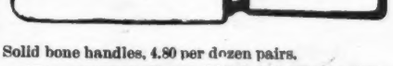
| | | | | |
|---|---|---|---|---|
| 40.00 | 41.35 | 53.35 | " | " |



Hard rubber handles, 5.75 per dozen pairs.



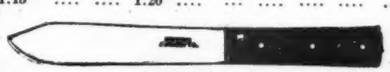
Solid bone handles, 4.80 per dozen pairs.



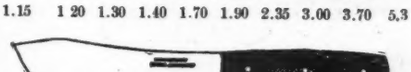
Celluloid handles, 7.35 per dozen pairs.
Forks are made to match all above patterns, with either three or four prongs.
Discount 25 %.

BUTCHERS'—COCOBOLA HANDLES.

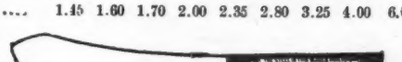
| | Per dozen. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4 and 4½ in. | 5 in. | 5½ in. | 6 in. | 6½ in. | 7 in. | 8 in. | 9 in. | 10 in. |
| 1.15 | .... | .... | 1.20 | .... | .... | .... | .... | .... |



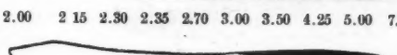
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.15 | 1.20 | 1.30 | 1.40 | 1.70 | 1.90 | 2.35 | 3.00 | 3.70 | 5.3[illegible] |



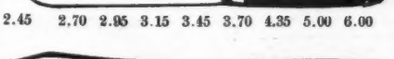
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .... | 1.45 | 1.60 | 1.70 | 2.00 | 2.35 | 2.80 | 3.25 | 4.00 | 6.0 |



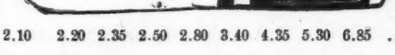
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 2.15 | 2.30 | 2.35 | 2.70 | 3.00 | 3.50 | 4.25 | 5.00 | 7.50 |



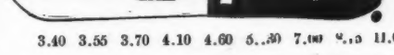
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2.45 | 2.70 | 2.95 | 3.15 | 3.45 | 3.70 | 4.35 | 5.00 | 6.00 |



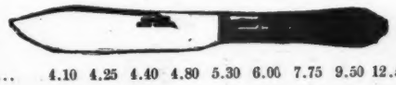
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.10 | 2.20 | 2.35 | 2.50 | 2.80 | 3.40 | 4.35 | 5.30 | 6.85 | .... |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.40 | 3.55 | 3.70 | 4.10 | 4.60 | 5.[illegible]0 | 7.[illegible]0 | [illegible].[illegible] | 11.00 | |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .... | 4.10 | 4.25 | 4.40 | 4.80 | 5.30 | 6.00 | 7.75 | 9.50 | 12.50 |

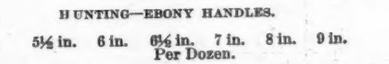


| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.00 | 2.15 | 2.30 | 2.35 | 2.70 | 3.00 | 3.50 | .... | .. . | .... |

Discount 25 and 10 %.

HUNTING—EBONY HANDLES.

| 5½ in. | 6 in. | 6½ in. | 7 in. | 8 in. | 9 in. |
|---|---|---|---|---|---|
| Per Dozen. | | | | | |



| | | | | | | |
|---|---|---|---|---|---|---|
| 2.55 | 2.70 | 3.00 | 3.30 | 3.55 | 4.00 | 5.00 | 6.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2.55 | 2.70 | 3.00 | 3.30 | 3.55 | 4.00 | 5.00 |

Discount, 25 and 10 %.
Per Dozen.

Putty knives, cocobola handles..... ..... $1.30@$1.50

SHEARS.

TAILORS'—JAPANNED OR NICKEL HANDLES.

Per pair.

| | | | |
|---|---|---|---|
| 12 in | 6.00 | | |
| 12½ in | 7.00 | | |
| 13 in | 8.00 | | |
| 13½ in | 9.00 | | |
| 14 in | 10.00 | | |
| 14½ in | 11.00 | | |
| in | 12.00 | 16 in | 14.00 |

Discount, japanned, 60 %; nickle, 45 %.

BENT TRIMMERS.

Per dozen.

| | | | |
|---|---|---|---|
| 6 in | 13.00 | 10 in | 27.00 |
| 7 in | 15.00 | 11 in | 30.00 |
| 8 in | 17.00 | 12 in | 33.00 |
| 9 in | 22.00 | | |

STRAIGHT TRIMMERS.

Per dozen,

| | | | |
|---|---|---|---|
| 6 in | 12.00 | 10 in | 25.00 |
| 7 in | 14.00 | 11 in | 30.00 |
| 8 in | 16.00 | 12 in | 33.00 |
| 9 in | 19.00 | | |

LADIES' SCISSORS.

Per dozen.

| | | | |
|---|---|---|---|
| 4½ in | 10.00 | 6 in | 11.00 |
| 5 in | 10.00 | 6½ in | 12.00 |
| 5½ in | 10.50 | 7 in | 13.00 |

PAPER AND BANKERS'.

Per dozen.

| | | | |
|---|---|---|---|
| 9 in | 18.00 | 13 in | 36.00 |
| 10 in | 25.00 | 14 in | 42.00 |
| 11 in | 27.00 | 16 in | 54.00 |
| 12 in | 32.00 | 18 in | 20.00 |

BARBERS—Per dozen.

| | | | |
|---|---|---|---|
| 7¾ in | 15.00 | 9 in | 18.00 |
| 8 in | 16.00 | 9½ in | 20.0 |
| 8½ in | 17.00 | | |

SCISSORS.

BUTTON-HOLE.

5 and 5½in., 14 00 per dozen.

Discount, japanned, 70 and 10 % nickel, 60 and 10 %

PRUNING.

1 B., 9 in., 24 per dozen; 2 B. 8½ in., 21; 3 B., 7¾ in., 9.80.

No. 110,

10 in.,

$30 per doz

Dis., 35%.

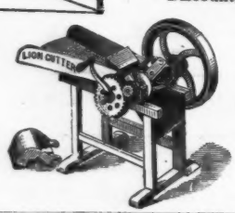
PRUNING SHEARS FOR LONG HANDLES.

No. 1, $36 per dozen; No. $30 per dozen.

Discount, 35%.

**Cutters.**

FEED.




| No. of cutter. | No. of knives. | Length in inches of knives. | Length in inches of feed cut. | Price. |
|---|---|---|---|---|
| 1 | 2 | 6¼ | ⅛, ¾ and 1⅛ | $18.00 |
| 2 | 2 | 7¼ | ⅛, ¾ and 1⅛ | 21.00 |
| 2½ | 1 | 7¼ | ⅝, ⅞, 1¼ and 1¾ | 21.00 |
| 2½ | 2 | 7¼ | ⅛, ⅞, ⅝ and 1⅛ | 23 00 |
| 3 | 1 | 8½ | ⅝, ⅞, 1¼ and 1¾ | 25.00 |
| 3 | 2 | 8½ | ⅛, ⅞, ⅝ and 1⅛ | 27.00 |
| 4 | 1 | 10 | ⅝, ⅞, 1¼ and 1¾ | 30.00 |
| 4 | 2 | 10 | ⅛, ⅞, ⅝ and 1⅛ | 33.00 |
| 5 | 2 | 10 | ⅛, ⅝, 1⅛ and 1¼ | 35.00 |
| 6 | 2 | 11 | ⅛, ¾, 1¼ and 2 | 45.00 |
| 6½ | 2 | 11 | ⅛, ¾, 1¼ and 2 | 45.00 |
| 7 | 2 | 13 | ⅛, ¾, 1¼ and 2 | 60.00 |
| 7½ | 2 | 13 | ⅛, ¾, 1¼ and 2 | 60.00 |
| 10 | 2 | 16 | ⅛, ¾, 1¼ and 2 | 80.00 |
| 12 | 2 | 20 | ⅛, ¾, 1¼ and 2 | 100.00 |
| 11 | 2 | 11 | ⅛, ¾, 1¼ and 2 | 45.00 |
| 13 | 2 | 13 | ⅛, ¾, 1¼ and 2 | 60.00 |
| 16 | 2 | 16 | ⅛, ¾, 1¼ and 2 | 80.00 |
| 0 | 2 | 20 | ⅛, ¾, 1¼ and 2 | 100.00 |

The knife arbors for all sizes are made of machinery steel. 30 per cent. dis.

VEGETABLE—GALE'S.



| Size. | Weight of Fly Wheel. Pounds. | Will cut per hour. Pounds. | Price |
|---|---|---|---|
| No. 1½ | 20 | 1,500 | $12 |
| No. 2½ | 32 | 1,700 | 15 |
| No. 3½ | 32 | 1,700 | 15 |
| No. 4 | 42 | 2,000 | 18 |
| No. 5 | 50 | 3,000 | 25 |
| No. 10 | 65 | 8,000 | 35 |

30% dis.

**Drill—Portable Hand Rock.**

Price, $225.

Dis., 20%.

**Electrical Appliances.**

20,000 ohm Testing Generator..... $10.00

Pony Magneto Bell..... 6.00

Standard Magneto Bell ..... 7.50

Standard Extension Bell..... 4.00

Pony Extension Bell..... 3.00

Discount 40 per cent.

**Electroplate.**

| | Extra plate, per doz. | Double plate, per doz. | Triple plate, per doz. |
|---|---|---|---|
| Oyster forks | 7.00 | 9.00 | 11.00 |
| Sugar shells | 9.00 | 11.00 | 13.00 |
| Sugar tongs | 25.50 | 31.50 | 37.50 |
| Butter knives, twist or reversed handles | 10.50 | 12.50 | 14.50 |
| Nut picks | 4.75 | 6.00 | 7.25 |
| Pie knives, engraved blades. | 42.00 | 51.00 | 60.00 |
| Soup ladles | 48.00 | 60.00 | 72.00 |

Dis. 60 and 2%. Aesthetic medium fork.

| Tea spoons. | Table spoons. | Medium forks. |
|---|---|---|
| 7.50 | 15.00 | 15.00 per gross. |

Discount, 30 and 5 %.

Children's sets *on cards*. 3 pcs. 4 pcs.

Leader pattern, as per cut....21.00 24.00 doz. 60 and 5 %

Aesthetic pattern, as per cut.. 5.75 7.25 doz. 30 and 5 %

SPOONS, FORKS, ETC., BEST PLATE ON HARD WHITE METAL

Tipped Tea Spoon.

Oval Tea Spoon.

Perfect Tea Spoon.

Leader Tea Spoon.

| | Tipped 5 oz. or extra plate | Oval. | Perfect and Leader. |
|---|---|---|---|
| Tea spoons | 4.25 | 4.50 | 4.75 per doz |
| Dessert spoons | 7.50 | 8.00 | 8.50 " " |
| Table spoons | 8.50 | 9.00 | 9.50 " " |
| Coffee spoons | 4.25 | 4.50 | 4.75 " " |
| Dessert forks | 7.50 | 8.00 | 8.50 " " |
| Medium forks | 8.50 | 9.00 | 9.50 " " |

Discount, 60 and 5%.

Spoons and forks, German silver, tipped pattern.

| Tea spoons. | Table spoons. | Medium forks. |
|---|---|---|
| 22.50 | 45.00 | 45.00 per gross. |

Discount, 60 and 2½%.

Spoons and forks, made from brass, and silver plated a coating of hard, white nickel.

CASTERS.



1,200—Dinner. Dis., 60 and 2½%. 232—Breakfast.

Dinner Casters.

No. 1,200. 17½ in. high, $8.00, quadruple plate.
No. 80. 17 in., $6.00, quadruple plate.
No. 140. 16 in., $7.50,
No. 830. 16 in., $5.00, Plain, 50 cents less.
No. 25. 16 in., $4.00, double plate.
No. 33. 16 in., $3.75, " "
No. 53. 15 in., $3.00,
No. 15½. 14½ in., $2.00, single plate.
No. 19. 14½ in., $1.85, " "
No. 40. 14 in., $1.75, " "

PICKLE DISHES

No. 144. 12 in. high, $3.50
No. 66. 10½ in. high, $2; assorted colored glass.
No. 155. 12 in. high, $4; assorted colored glass.
No. 146. 12½ in. high, $9; hand decorated glass.
No. 156. 12½ in. high, $6; hand decorated glass.

No. 146.

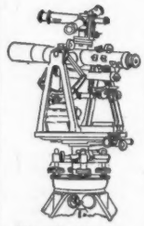
No. 255.

TEA SETS.

No. 255. 6 pieces, $35, quadruple plate.
No. 301. 4 pieces, $23, quadruple plate.
No. 1847. 6 pieces, $42, quadruple plate.

Dis., 60 and 2½%.

**Engineering Instruments.**



Full Engineer's Standard Transit.
7 in. graduated circle .. .....$255
6 in. " " " ..... 245
5 in. " " " ..... 235
4 in. " " " ..... 225
Standard Engineer's Level, improved centre and seat attachment, 18 in. telescope .. ... ... 140
Plain railroad level, 18 in. telescope..... 125

**Explosives.**

| | | | |
|---|---|---|---|
| Dynamite, 75% | Nitro-Glyceine, per lb | | .32 |
| " 60% | " " " | | .25 |
| " 40% | " " " | | .20 |
| Blasting powder A, per keg 25 lbs | | | $2.40 |
| " B, | " " | | 1.90 |
| Sporting powder, standard brands, per keg 25 lbs | | | 5.00 |
| " " " " " | | 12½ lbs. | 2.75 |
| " " " " " | | 6¼ lbs. | 1.50 |
| " " high grades | | 6¼ lbs. | 3.00 |
| " " " | per can 1 lb | | 60 |
| " " fancy brands | " 1 lb | | 1.00 |

Discounts special for quantity.

| | | |
|---|---|---|
| Safety fuse, cotton, 12 M ft. in case | | $2.85 per M ft. |
| " " single tape, 6 M ft. in case | | 4.25 " " |
| " " double tape | | 5.40 " " |
| " " triple tape | | 6.50 " " |

Discount 17½%.

| | | |
|---|---|---|
| Detonating caps, triple force, 25 M. in case | | $5.00 per M. |
| " quintuple force, 25 M. in case | | 7.50 per M. |
| Electrical exploders, 4 ft. wires | | $3.00 per 100 |
| " " 6 " | | 3.54 " |
| " " 8 " | | 4.08 " |
| " " 10 " | | 4.62 " |

Discount 15%. Long lengths to order.

| | No. | Capacity. | |
|---|---|---|---|
| Magneto Blasting Machines | 1 V. | 8 holes | $17.00 |
| " " " | 2 V. | 20 " | 25.00 |
| " " " | 3 L. | 20 " | 25.00 |
| " " " | 3 V. | 30 " | 30.00 |
| " " " | 4 V. | 60 " | 50.00 |

Discount 15%.

| | |
|---|---|
| Blasting cables | $5.00 each, discount 40% |
| " reels | 5.00 " " 20% |

**Flouring Mill Machinery.**

20-inch New Era Mill for Wheat, Corn, and Middlings.

| Size. Inch. | Power. H. P. | Pulley. Inch. | Capacity Bush. |
|---|---|---|---|
| 20 | 4 to 10 | 14 × 7 | 12 to 40 |

| Speed. | Weight. Lbs. | Price. |
|---|---|---|
| 500 to 800 | 660 | $150 |

Farm and Plantations Mills.

| Diameter of burrs. | Power to drive. | Size of pulley. | Capacity per hour. | Revolutions per minute. | Weight. | Price |
|---|---|---|---|---|---|---|
| | H. P. | | | | | |
| 18 in. | 2 to 4 | 9×5½ | 4 to 14 bushels | 600 to 1200 | 370 lbs. | $100 |
| 14 in. | 4 to 10 | 11×6½ | 8 to 40 bushels | 400 to 700 | 600 lbs. | 130 |

### The Dixey Mill—Stiff Spindle Style.

| Size. | Power. | Capacity. | Weight. Pulley. | Weight. Geared | Pulley. | Iron gear. | Mortise gear. |
|---|---|---|---|---|---|---|---|
| 18 | 4 to 6H.P. | 8 to 25 bu | 560 lbs | 650 | $130 | $165 | |
| 22 | 6 to 8 " | 12 to 30 " | 800 " | 1000 | 165 | 200 | |
| 26 | 8 to12 " | 16 to 40 " | 1100 " | 1500 | 185 | 220 | |
| 30 | 10 to15 " | 25 to 60 " | 1300 " | 1700 | 215 | 255 | |

### Grinding Mills.

"Daisy," without Shaking Bolt, 170 pounds, 9 cubic feet, $40.

"Daisy," with Shaking Bolt, 185 pounds, 9 cubic feet, $48.

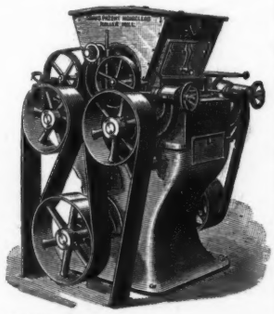
} Discount 25 per cent.

"The Union Mill."

| Diameter of Buhr Stones | Size of Pulleys Diam. | Face. |
|---|---|---|
| 12 in. | 8 in. | 6¼ in. |
| 16 " | 9 " | 7½ " |

| Horse Power | Capacity in B'sh's | Speed | Without Bolt | With Bolt | Sacking Elevator, Extra | Extra Metal Buhrs |
|---|---|---|---|---|---|---|
| 8 to 10 | 12 to 30 | 1200 to 1500 | $90.00 | $105.00 | $15.00 | $1.20 pair |
| 10 to 15 | 20 to 50 | 1000 to 1600 | 160.00 | 178.00 | 17.50 | 1.50 " |

### Flour Mills.



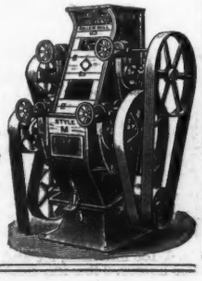
For grinding corn, feed, rye, etc,
Gray's pat. noiseless belt roller-mills, porcelain rolls.

| | | H. power required. | Price |
|---|---|---|---|
| With corrugated chilled iron rolls. | 14" × 16"... | 5' 7" | $600.00 |
| | 14" × 16"... | 5' 10" | 800.00 |
| | 9" × 14"... | 5' 11½" | 580.00 |
| With Wegmann's patent porcelain rolls. | 9" × 14"... | 5' 11½" | $800.00 |
| Divided four roller machines. | 9" × 14"... | 5' 11½" | $650.00 |
| | 9" × XXX | 5' 11½" | $560.00 |
| | 9" × 14"... | 5' 11½" | 615.00 |
| | 9" × 14"... | 5' 11½" | 625.00 |

| Revolutions per minute. | Width. | Length. | Height. |
|---|---|---|---|
| 200 to 300 | 4' 5" | 3' 2" | 5' 7" |
| 200 " 300 | 4' 10" | 5' 6" | 5' 10" |
| 300 " 400 | 3' 10" | 3' 10" | 5' 11½" |
| 300 to 400 | 3' 10" | 3' 10" | 5' 11½" |
| 300 to 400 | 3' 10" | 3' 10" | 5' 11½" |
| 300 to 400 | 3' 10" | 3' 10" | 5' 11½" |
| 300 to 400 | 3' 10" | 3' 10" | 5' 11½" |
| 300 to 400 | 3' 10" | 3' 10" | 5' 11½" |

### Sizes of Rolls.

| Size. | Height. | Width. | Length. |
|---|---|---|---|
| 6" × 12"... | 4' 6" | 3' 5" | 2' 7" |
| 9" × 14"... | 5' 8" | 3' 10" | 3' 5' |
| 9" × 18"... | 5' 8" | 4' 9" | 3' 5' |
| 9" × 24"... | 5' 8' | 5' 6" | 3' |



### The Nordyke Bradford Portable Mill.

| Size of stones, In. | Grinding capacity. Corn, bu. per hour. | Wheat bu. per hour. | Horse-power. | Weights. Sing'l gear. | Double gear. | Pulley mill. | Geared mills. Iron wh'ls. | Mortise wh'ls. |
|---|---|---|---|---|---|---|---|---|
| 18 | 8 to 10 | ..... | 4 | 550 | 625 | $130 | $165 | $180 |
| 20 | 10 to 12 | ..... | 5 | 600 | 700 | 140 | 175 | 190 |
| 22 | 12 to 15 | ..... | 5 | 700 | 850 | 160 | 190 | 210 |
| 24 | 15 to 18 | ..... | 6 | 900 | 1050 | 175 | 210 | 225 |
| 26 | 18 to 20 | 8 to 10 | 8 | 1200 | 1400 | 185 | 225 | 250 |
| 30 | 20 to 25 | 10 to 12 | 10 | 1500 | 1700 | 225 | 255 | 290 |
| 36 | 25 to 30 | 14 to 17 | 12 | 1800 | 2100 | 315 | 355 | 380 |
| 42 | 35 to 40 | 19 to 21 | 15 | 2000 | 2300 | 390 | 435 | 460 |

| Driving pulley. | Revolutions per minute. | Length of belt above floor. | Approximate shipping weight | Price. |
|---|---|---|---|---|
| 10" × 5¼" | 400 to 500 | 14' | ..... | $500.00 |
| 14" × 6¼" | 350 to 450 | 18' | 2600 lb. | 600.00 |
| 14" × 7¼" | 350 to 450 | 18' | 3050 lb. | 650.00 |
| 14" × 8¼" | 350 to 450 | 18' | 3350 lb. | 735.00 |

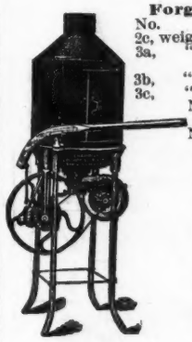
### Flue Cleaner.

Hurley's Automatic Steam Flue Cleaner.

| No. | Outside diam. of tubes. | With hose clamps. | Globe Valves. | Best 4-ply steam hose. Per foot. |
|---|---|---|---|---|
| 1 | 1½ to 2 | $5.00 | ½, 95 cents | ¾, 67 cents. |
| 2 | 2 to 2½ | 6.25 | ½, 95 cents | ¾, 67 cents. |
| 3 | 2½ to 3 | 7.50 | ¾, $1.30 | ¾, 67 cents. |
| 4 | 3 to 3½ | 8.75 | 1, 1.75 | 1¼, 83 cents. |
| 5 | 3½ to 4½ | 10.00 | 1½ 2.90 | 1¼, $1.04 |

Dis. on flue cleaners, 60 an 1 70%.
Dis. on steam hose, 50%, good to 90 lbs steam.

### Forges (Portable).



No. 2c, weight, 155 lbs. 21×27 hearth .. $42.00
3a, " 80 " 18 in. diam. hearth..... 27.00
3b, " 75 " 18 " ..... 24.00
3c, " 85 " 18 " ..... 30.00
No. 6a, weight 45 lbs., 14 in. diam. hearth..... 18.00
No. 6B, weight 45 lbs. 14 in. diam. hearth..... 16.00
Dis. 60%.
Light work, 12 × 17; height, 15 in., $16.00.
Same, with Hood, 12 × 17; height, 28 in., $20.00.
Bridge, Boiler or Railroad work, Pan, 17 × 19; height, 29 in.; Fan, 8 in., $27.00.
Same, with Hood, $30.00.
Water Tank, $4.00 extra.
Iron Fire Ring Round Tuyere, $1.00 extra.
50 % dis.

No. 1, 18 in. bellows, $20; No. 2, 20 in. bellows, 25; No. 3, 22 in. bellows, $30.
20% dis.
Stationary.
27 in. bellows, $21; 30 in. bellows, $25; 33 in. bellows, $33; 36 in bellows, $45.
20% dis.

Riveting Forges.
Bellows, 18 in.. 20 in., 22 in., 24 in.
$8.00. $10.00. $13.00. $17.00
20 % dis.

### Fruit Evaporator.

No. 1. Evaporator..... $30
No. 2. Fruit Drier and Baker, with Bleacher attachment. Weight, 225 lbs. Capacity, 5 to 7 bushels apples per day; 24 in. deep, 26 in. wide, 5½ ft. high; 12 trays, 22 × 22; 40 square feet drying surface. Complete..... ..... ..... $50
No. 3. Capacity, 15 to 20 bushels per day..... 100
No. 4. Capacity, 20 to 30 bushels per day..... 160
Dis., No. 1, 3 and 4 = 20%. No. 2 = 30%.
Boxing, extra:
No. 1, $3.00: No. 2, $5.00; No. 3, $7.50; No. 4, $12.50.
Freight to New York:
No. 1, $4.00; No. 2, $6.00; No. 3, $12.00; No. 4, $18.00.

### Gaskets.

Corrugated Copper.

Price, 2 cents per square inch, less 30 per cent. discount for home trade.
Less 60% discount for export trade.

### Glass Tube Cutters.

One Arm Carries Rotary Cutter Price, $2.50 each.

### Glassware.

6-in. bowl and cover, per doz.....$3.25
7-in. " " " ..... 4.50
8-in. " " " ..... 6.00
9-in. " " ..... 8.00
10-in. " " ..... 10.50
Net.

Nappy, 4½-inch., per doz., 50c.; 6-inch., per doz., $2 nch .. per doz., $3: 8-inch., per doz $4.
Cream Pitcher, 1 pint, per doz., $1.25; one quart, per doz., $3.50; 3 pints, per doz., $4.50.
Pint Pitcher, per doz., $1.50; quart pitcher, per doz., 2; ½ gallon pitcher, per doz., $3; 3 quart pitcher per oz., $4.50.

Flange Butter and Cover, per doz., $1.75.
Water Set, perdoz., sets of 60 pieces, $7.50.

Cheese Dish and Cover, 8 in. per doz., $4.50.
Quart Water Bottle, per doz., $4.50.

Ind. Salts; per gross, $2.00. Assorted patterns.
4 Bottle Castors, per doz., $7.50; 3 bottle, per doz., $4.50.

Berry Dish, 4½-inch , per doz., 50c.; 10-inch, per doz. $4.
Butter Dish and Cover, per doz., $1.25.
Butter Dish and Cover, per doz., 75c.

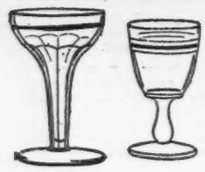
Candlesticks, per doz., $2.00. Glass Slipper for Flowers, per doz., 50 cents; slipper and tray, per doz., $1. Jam Jar and Cover, 1 qt., per doz., $2.50; ½ gal., per doz., $3.25; ¾ gal., per doz., $4; 1 gal., per doz., $5; 1½ gals., $9; 2 gals., per doz., $12. Pocket Flask, 1 pint, $1.

Tumblers. 1⅜ oz., per doz., 50 cents
8 " " 75

9 oz., per doz., $2.75.

11 oz., assorted patterns, per doz., 30 cts.

9½ oz., assorted patterns, per doz., 25 cts.



1 oz. to 12 oz., nested for shipping, per doz. nest, $2.

Goblets, banded, per do 65 cents.
Claret to match, per doz., 55 cents.
Wines, to match, per doz., 50 cents.
Cordials, to match, per 45 cents.

Goblets, per doz., 50 cts.
Claret, " 50 "
Wine " 35 "

Banded, open, hollow stem.

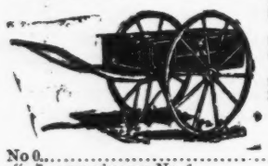
Champagne, per doz., $1.25.

½ Pt. tumbler, per doz..55 cts.
½ Pt. mug to match, " ..65 "
Goblet, " " ..50 "

Spoon holder, cream pitcher, sugar butter dish to match.

Sets of 4 pieces, per doz. sets, 48 pieces, $3.75.

**Hand Carts**



No. 0 42 wheel in. tread, 1 in. axle-box 48x28x10 deep, $10.50.
No. 1, 36 wheel, 1 in. tread, ⅞ in. axle, box 40x23x10 deep, $9.00.
No. 2, 30 wheel, ¾ in tread, ¾ in. axle, box 32x20x9 deep, $8.25.
With Wagon-Seat Spring.
No. 6, same sizes as

No 0.....$12.00
" 7, same sizes as No. 1 ..... 10.50
" 8, " " " No. 2..... 9.75

With Third Wheel, Without Springs.

No. 3, same sizes as No. 0..... $12.00
" 4, " " " No. 1..... 10.50
" 5, " " No. 2..... 9.50

**Hardware Specialties.**

AUGERS.

Patent Adjustable Hollow.

Cuts from ¼ to 1¼, pivoted jaws, graduated scale to 1-16ths, per doz., $60.00

Discount, 15 and 10%.

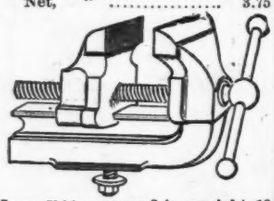
Patent Hollow Auger.

| Inch..... | 5-16 | ⅜ | 7-16 | ½ |
|---|---|---|---|---|
| With bits.... | 12.00 | 12.00 | 12.00 | 12.00 |
| Without bits | 8.00 | 8.00 | 8.00 | 8.00 |
| 9-16 | ⅝ | ¾ | ⅞ | 1 |
| 14.00 | 14.00 | 14.00 | 16.00 | 16.00 | 20.00 |
| 9.00 | 9.00 | 9.00 | 13.00 | 13.00 | 14.00 |
| 1¼ | 1⅜ | 1½ | | | |
| 20.00 | 24.00 | 24.00 | | | |
| 14.00 | 16.00 | 15.00 | | | |

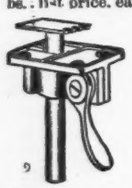
Discount, 15 and 10%.

BENCH DRILL.

Adjustable bed plate. 26½ high drills to ½ in. hole, 3½ run of screw.
List price, each.....$10.00
Net, " ..... 3.75

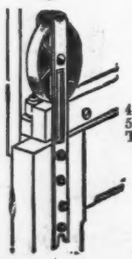


Bench Vise, Steel Jaws, 3½ in., opens 3 in.; weight, 12 lbs. List price, each, $4.00.; net price, each, $1.60.



BENCH HOOK.

Patent, adjustable and reversible
List $9 dozen, ½ dozen in box.
Discount, 20 and 10%.

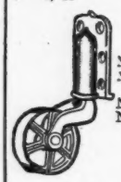


BARN DOOR HANGER.

4 in., per doz. pairs.....$12.00
5 " " " ..... 14.40
Track, per foot..... .08
One dozen pairs in case.
Dis., 50%.

BLACKSMITH'S TONGS.
Swivel Jaw.

No. 1, 16 in., per doz.....$10.00
" 2, 18 " " ..... 10.00
Dis. 20%.



CASTERS.
Swivel Store Truck

No. 20, japanned, 4 in. wheel, each..... .55
No. 25, " 5 " " " ..... .75

Noiseless turned wheel.

No. 30, japanned, 4 in. wheel, each..... 1.30
No. 35, " 5 " " " ..... 1.60
Discount, 25%.

CLOTHES REEL.

Extra heavy, gray iron, japanned.
List per doz.....$15.00
Net ..... 7.00

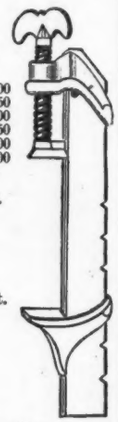
JACK SCREWS.
New pattern wrought iron screw.

| No. | Rise of screw. | High. | Diameter screw. | Price. |
|---|---|---|---|---|
| 20 | 4½ in. | 10 in. | 2 in. | $4.50 |
| 25 | 6½ " | 12 " | 2 " | 5.25 |
| 30 | 8½ " | 14 " | 2 " | 5.75 |
| 35 | 11½ " | 16 " | 2 " | 6.50 |

Discount, 40%.

Store Truck, stationary.

No. 50, 5-inch wheel, 1½ inch wide each, $1.05.
No. 60, 5-inch, extra heavy, 1½ inch wide, each $1.50.
Discount, 25%.

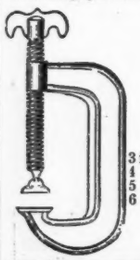


SCREW CLAMPS.
Adjustable.

3 in., per doz.....$4.00
5 " " ..... 6.50
7 " " ..... 9.00
9 " " .....10.50
12 " " .....15.00
16 " " .....20.00

½ doz. in box.
Discount, 20 and 10%.

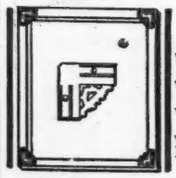
CLAMPS.
New Door Frame.
3 ft. long, per doz., $8 list; $5 per doz. net.



Malleable Iron Screw Clamps.

| Per Doz. | | Per Doz. | |
|---|---|---|---|
| 3 in. | $7.00 | 7 in. | $20.00 |
| 4 " | 10.00 | 8 " | 25.00 |
| 5 " | 12.00 | 9 " | 27.50 |
| 6 " | 16.00 | 10 " | 30.00 |

3, 4, 5, 6 in., ½ doz. in box.
Dis., 70%.



WINDOW SCREEN FRAMES.
Patent Japanned Corners.

No. 25, 36 by 36 corners and screws, without bead, per doz., $2.50.
No. 25, 36 by 36 corners and screws, with bead, per doz., $2.90.
No. 35, 42 by 42 corners and screws, without bead, per doz., $2.90.
No. 35, 42 by 42 corners and screws, with bead, per doz., $3.30.
Black satin stain, sticks ⅞ by 1 in.
Dis., 20 %.

PULLEYS.
Side, No. 45, Japanned.

| Inches... | 1 | 1½ | 2 | 2½ | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| Per doz.. | .90 | 1.00 | 1.60 | 2.40 | 3.50 | 9.00 | 15.00 |

2 inch and under, 2 dozen in box: 2½, 3 and 4, 1 dozen in box; 5 inch, ½ dozen in box.
Discount, 50%.

HAY FORK PULLEY.

New pattern.

No. 15, 5 in. iron wheel.....per doz. $4.50
25, 5 in. wood " ..... " 4.50
66, 6 in. " " ..... " 6.00

4 dozen in case, 8 dozen in barrel.

No. 15, per dozen, $2 net.

PULLEY HOOK (New Floor.)
Deep cut thread, forged point.

Per doz.
¾ in. wrought iron, 8 in. long, list..... $1.90
net..... 1.00

WELL WHEEL.
New pattern.
Japanned.

| In. | 8 | 10 | 12 | 14 | 16 |
|---|---|---|---|---|---|
| Pr.d. | 7.00 | 9.50 | 12.50 | 20.00 | 30.00 |

Discount, 70%.

SHEAVES.
Patent Common
Turned and polished iron wheels, round corners, brass pin, one set in box.

2½ inch.....$1.50
3 " ..... 1.60
4 " ..... 2.00
5 " ..... 2.60
Discount, 50%.

SINKS.
All 6 inch deep.

| | | | |
|---|---|---|---|
| 14 × 20 in.... | $1.50 | 18 × 30 in.... | $2.50 |
| 15 × 25 in.... | 1.75 | 18 × 32 in.... | 3.00 |
| 15 × 27 in.... | 2.00 | 18 × 36 in.... | 3.00 |
| 16 × 24 in.... | 1.80 | 20 × 30 in.... | 3.00 |
| 16 × 28 in.... | 2.10 | 20 × 36 in.... | 3.70 |
| 17 × 30 in.... | 2.25 | 20 × 40 in.... | 4.00 |
| 18 × 24 in.... | 2.10 | | |

Discount, 60%.

SPOKE POINTERS.

Per doz.
No. 1, points 1⅞ in. diameter, $9.00
No. 2, points 2⅝ in. diameter, $15.00

Discount, 15 and 10%.

¼ dozen in box.

VISE.
(Bench Vise, Steel Jaws.)
3½ in. opens 5 in., weight 12 lbs.
List price, each.$4.00
Net " " .. 1.60

Silent Saw Vise.
No. 10., 10 in. jaw, per doz....$15.00
Dis., 33⅓%.

| No. | per dz. | gr., lbs. | per No. Clamp. | per dz. | gr., lbs. |
|---|---|---|---|---|---|
| 1 | Amateur vise.....$2.25 | 70 | 1½..... | 3.00 | 80 |
| | | | 2½..... | 5.00 | 220 |
| Anvil. | | | 3½..... | 14.25 | 700 |
| 2 | ..... 3.75 | 200 | 4½..... | 21.00 | 1,425 |
| 3 | .....11.25 | 615 | Combination | | |
| 4 | .....18.00 | 1,350 | hand..... | 5.25 | 85 |
| 10 | .....24.00 | 1,675 | | | |

Spot cash discount, 33, 20 and 2, f.o.b.

Nos. 1, 1½, 2 and 2½ are packed in dozens; Nos. 3 and 3½ in half dozens; Nos. 4, 4½ and 10 in quarter dozens, and No. 20 singly. Each hand vise is put up in neat box and packed in half dozen lots.

1 Hinge pipe vise, 0 to 2 in. pipe.....Each $10.00
2 " " " 0 to 4 in. pipe..... 20.00
1 Malleable pipe vise, 0 to 2 in. pipe..... 8.00
1 Combination pipe and bench vise, 0 to 2 in. pipe...16.00
Discount, 50%.

WRENCHES.

Coes Wrenches.

BLACK.
Knife Handle.

| Size. | ₱ doz. | Size. | ₱ do | | ₱ doz. |
|---|---|---|---|---|---|
| 6 inch..... | $9.00 | 10 " ..... | 12.00 | 15 inch..... | 24.00 |
| 8 " ..... | 10.00 | 12 " ..... | 14.00 | 18 " ..... | 30.00 |
| 21 inch..... | | | 36.00 | | |

BRIGHT.
Knife Handle.

| | | | | | |
|---|---|---|---|---|---|
| 4 inch..... | $10.00 | 10 inch..... | 14.00 | 18 inch .... | 32.00 |
| 6 " ..... | 10.00 | 12 " ..... | 16.00 | 21 " ..... | 38.00 |
| 8 " ..... | 11.00 | 15 " ..... | 26.00 | | |

Discount, 55, 10, 7½ and 3 %.

Coes Mechanics' Screw Wrenches, same list, less 55, 10, 7½ and 3 %.

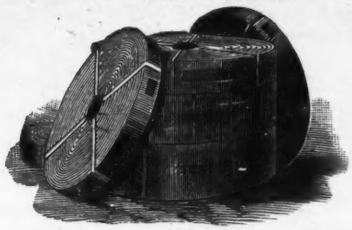
Patent Screw Wrench, same list. Dis, 55, 10, 7½ and 3%.

**Ice Machines (Family).**

No. 1, Ice machine, ice and ice cream molds, 1 lb. ice, $15.00.
No. 2, Ice machine, ice and ice cream molds, 1½ lbs. ice, $20.00.
No. 3, Ice machine, ice and ice cream molds, 1 carafe 1 bottle holder, 2 lbs ice, $26.50.
No. 4, Ice machine, ice and ice cream molds, 2 carafe 1 bottle holder, 4 lbs. ice, $33.00.
No. 5, Ice machine, ice and ice cream molds, 3 carafe 1 bottle holder, 6 lbs. ice, $40.00.
No. 6, Ice machine, ice and ice cream molds, 4 carafe, 1 bottle holder, 9 lbs. ice, $46.50.

## India Rubber Goods.

MECHANICAL.

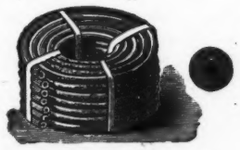


RUBBER BELTING.

| Inches. | 2 ply per foot. | 3 ply per foot. | 4 ply per foot. | 5 ply per foot. | 6 ply per foot. |
|---|---|---|---|---|---|
| 1 | $0.07 | ..... | ..... | ..... | ..... |
| 1¼ | 0.09 | ..... | ..... | ..... | ..... |
| 1½ | 0.11 | ..... | ..... | ..... | ..... |
| 2 | 0.15 | $0.17 | $0.21 | ..... | ..... |
| 2½ | 0.18 | 0.22 | 0.26 | ..... | ..... |
| 3 | 0.22 | 0.26 | 0.31 | ..... | ..... |
| 3½ | 0.26 | 0.30 | 0.37 | ..... | ..... |
| 4 | 0.30 | 0.34 | 0.42 | ..... | ..... |
| 4½ | 0.33 | 0.39 | 0.47 | ..... | ..... |
| 5 | 0.36 | 0.43 | 0.52 | ..... | ..... |
| 6 | 0.43 | 0.52 | 0.62 | ..... | ..... |
| 7 | 0.51 | 0.60 | 0.73 | ..... | ..... |
| 8 | 0.59 | 0.70 | 0.84 | $1.05 | $1.25 |
| 9 | 0.67 | 0.80 | 0.95 | 1.18 | 1.42 |
| 10 | 0.75 | 0.90 | 1.07 | 1.33 | 1.60 |
| 11 | 0.83 | 1.00 | 1.18 | 1.47 | 1.77 |
| 12 | 0.91 | 1.08 | 1.30 | 1.62 | 1.95 |
| 13 | 1.00 | 1.18 | 1.42 | 1.77 | 2.13 |
| 14 | 1.08 | 1.28 | 1.54 | 1.92 | 2.31 |
| 15 | 1.16 | 1.38 | 1.66 | 2.07 | 2.49 |
| 16 | 1.25 | 1.50 | 1.78 | 2.22 | 2.67 |
| 18 | 1.41 | 1.70 | 2.02 | 2.52 | 3.03 |
| 20 | 1.58 | 1.90 | 2.26 | 2.82 | 3.39 |
| 22 | 1.76 | 2.12 | 2.52 | 3.15 | 3.74 |
| 24 | 1.96 | 2.36 | 2.80 | 3.50 | 4.20 |
| 26 | 2.18 | 2.60 | 3.08 | 3.85 | 4.62 |
| 28 | 2.42 | 2.84 | 3.36 | 4.20 | 5.04 |
| 30 | ..... | ..... | 3.64 | 4.55 | 5.46 |
| 32 | ..... | ..... | 3.92 | 4.90 | 5.88 |
| 34 | ..... | ..... | 4.20 | 5.25 | 6.30 |
| 36 | ..... | ..... | 4.48 | 5.60 | 6.72 |
| 38 | ..... | ..... | 4.76 | 5.95 | 7.14 |
| 40 | ..... | ..... | 5.04 | 6.30 | 7.56 |
| 42 | ..... | ..... | 5.32 | 6.65 | 7.98 |
| 44 | ..... | ..... | 5.60 | 7.00 | 8.40 |
| 46 | ..... | ..... | 5.88 | 7.35 | 8.82 |
| 48 | ..... | ..... | 6.16 | 7.70 | 9.24 |
| 50 | ..... | ..... | 6.44 | 8.05 | 9.66 |
| 52 | ..... | ..... | 6.72 | 8.40 | 10.08 |

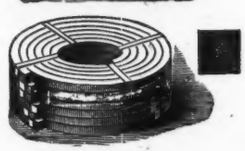
Dis. Reliance, 60 and 5. Dis. Royal, 60, 10 and 10. Dis Manhattan. 70 and 5. See Leather Belting, page 3; Link Belting, page 9.

PACKING.



Piston Packing.

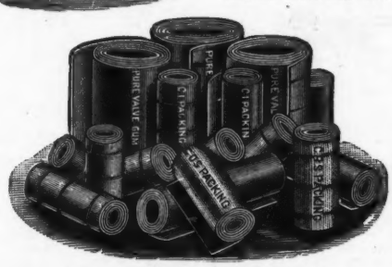
Round Piston Packing Per lb. 85c. Discount, 60, 10 and 5 per cent.



Square Piston Packing.

Price same as above. Round and square piston packing is made in lengths of twelve or twenty-four feet.

Square Piston Packing. Rubber back, per pound $1. Discount 60 per cent. Best only. Square piston packing rubber back is made in lengths of twenty feet.



Steam Packing.
Cloth Insertion, Rubber Outside.
Cloth Insertion, Cloth on one or both sides.

| Thickness. | 1-Ply. | 2-Ply. | 3-Ply. | 4-Ply. |
|---|---|---|---|---|
| 1-64 inch | 70 cts. | ..... | ..... | ..... |
| 1-32 " | 65 cts. | ..... | ..... | ..... |
| 1-16 " | 60 cts. | 63 cts. | 66 cts. | ..... |
| 3-32 " | 55 cts. | 58 cts. | 61 cts. | ..... |
| 1-8 " | 55 cts. | 55 cts. | 58 cts. | 61 cts. |
| 3-16 " | 55 cts. | 55 cts. | 55 cts. | 58 cts. |
| 1-4 " | 55 cts. | 55 cts. | 55 cts. | 55 cts. |

One-ply of cloth to every 1-16 inch thickness.
Three cents per pound additional will be charged for each extra ply of cloth. Each cloth, whether insertion or on outside, to count as one ply.
All cloth insertion or plain packing is one yard wide, and any length desired.
Wire insertion packing, all thicknesses, per lb, 50 cents.
Discounts: Reliance, 70 & 10; Royal, 60, 10 & 10; Manhattan, 60 per cent.

HOSE.

Improved "Smooth Bore" Rubber Suction Hose.
On spiral flat or round tinned steel wire.

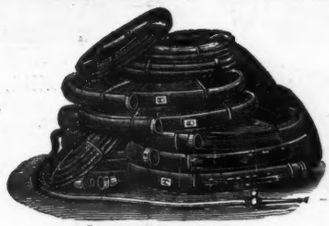
| Int. Diam. | Per ft. | Per. Diam. | Per ft. |
|---|---|---|---|
| 2 inch | $2.60 | 7 inch | $13.50 |
| 2½ " | 3.50 | 7½ " | 15.00 |
| 3 " | 4.00 | 8 " | 16.50 |
| 3½ " | 5.50 | 9 " | 19.50 |
| 4 " | 6.50 | 10 " | 22.50 |
| 4½ " | 7.50 | 12 " | 27.50 |
| 5 " | 8.50 | | |
| 5½ " | 9.50 | | |
| 6 " | 10.50 | | |
| 6½ " | 12.00 | | |

Suction hose discount: Reliance, 50 and 10%; Royal, 60, 10 and 5%; Manhattan, 70 and 5%.

SUCTION HOSE.

On spiral brass or iron wire

| Int. Diam. | Per. ft. |
|---|---|
| ¾-inch | $ .77 |
| 1 " | 1.00 |
| 1¼ " | 1.25 |
| 1½ " | 1.65 |
| 1¾ " | 2.10 |
| 2 " | 2.50 |



RUBBER HOSE.
Conducting Hose—Two-ply.

| Int. diam. | Per ft. | Int. diam. | Per ft. | Int. diam. | Per ft |
|---|---|---|---|---|---|
| ⅛ in. | $0.20 | 2 in. | $0.66 | 5 in. | $1.65 |
| ¾ in. | 25 | 2¼ in. | 75 | 6 in. | 1.98 |
| 1 in. | 33 | 2½ in. | 83 | 7 in. | 2.31 |
| 1¼ in. | 42 | 2¾ in. | 92 | 8 in. | 2.64 |
| 1½ in. | 50 | 3 in. | 99 | 9 in. | 2.97 |
| 1¾ in. | 58 | 4 in. | 1.32 | 10 in. | 3.33 |

HYDRANT HOSE—THREE-PLY.

| | | | | | |
|---|---|---|---|---|---|
| ⅛ in. | $0.25 | 1½ in. | $0.60 | 2½ in. | $1.00 |
| ¾ in. | 30 | 1¾ in. | 70 | 2¾ in. | 1.10 |
| 1 in. | 40 | 2 in. | 80 | 3 in. | 1.20 |
| 1¼ in. | 60 | 2¼ in. | 90 | 3½ in. | 1.40 |
| | | | | 4 in. | 1.60 |

Discount—Reliance, 60; Royal, 70; Manhattan, 70 and 10 per cent.

GASKETS AND RINGS.

Fibrous.
⅛ inch thick, or less, per lb. $0.90
5-32 inch thick, and upwards, per lb. $0.80
Cloth Insertion.
1-16 inch thick, or less, per lb. $1.25
3-32 inch thick, and upwards. per lb. $1.00
There is one ply of cloth to every 1-16 in thickness.
Five cents per pound additional for each extra ply of cloth. Dis., 60, 10 and 5%.

CORRUGATED RUBBER MATTING.

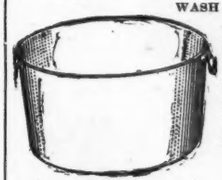
Rolls 1 yard wide, 30 yards long, cut to any size required.

## Indurated Fibre Ware.

SPITTOONS.

| | Doz. |
|---|---|
| 16 in. dia., 8 in. high | $24.00 |
| 12½ in. dia., 5½ in. high | 10.80 |
| 9 in. dia., 5 in. high | 7.80 |

WASH TUBS.



| | | | |
|---|---|---|---|
| No. 0, 23 in. | ⅛ | 12 | 27.00 |
| Nos. 0, 1, 2 and 3, nested | 1 | n. 3½ | 22.50 |
| No. 1, 21 in. | ⅛ | 10½ | 24.00 |
| No. 2, 19½ in. | ⅛ | 9 | 21.00 |
| No. 3, 18½ in. | ⅛ | 9 | 18.00 |
| Nos. 1, 2, and 3, nested | ⅛ | 9¾ | 21.00 |

CHAMBER PAILS.

12 in. dia., 9 in. deep, 3 gal. 16.00

WATER COOLERS.

| | Doz. |
|---|---|
| 3 gal | $32.00 |
| 4 " | 40.00 |
| 5 " | 44.00 |
| 6 " | 48.00 |
| 8 " | 64.00 |
| 10 " | 80.00 |
| 12 " | 96.00 |
| 15 " | 120.00 |

Dis., 40 and 2½%.

WATER COOLERS AND FILTERS.

| | Doz. |
|---|---|
| 4 gal | $96.00 |
| 5 " | 108.00 |
| 6 " | 120.00 |
| 8 " | 144.00 |
| 10 " | 192.00 |
| 15 " | 288.00 |

Dis. 40%.

Dis. on all 40 and 2½%.

| Pails. | No. doz. in crate. | Cubic feet. | Price per doz. |
|---|---|---|---|
| Ladies' or Weaver's pails, 6 qt. | 1 | 2¾ | $5.35 |
| Half or buggy pails, 6 qt. | 1 | 3 | 4.80 |
| Star pails (standard plain), 12 qt., stenciled "for fire only" without extra charge. | 1 | 3½ | 6.00 |
| Deck or Mason's pails (same size as Star, but heavier, with heavy wire bail) | 1 | 4 | 6.60 |
| Railroad or fire pails, 14 qt. (also stenciled "fire" without extra charge). | ½ | 3½ | 7.80 |
| Fire pails, round bottoms | 1 | 4 | 7.80 |
| Milk pails, 14 qt. | 1 | 4 | 7.80 |
| Stable pails, flush bottom, heavy wire bail, 14 qt | 1 | 4 | 7.80 |
| Stable pails, 16 qt., same as above | ½ | 3½ | 8.40 |
| " 18 " " | ½ | 3¾ | 10.70 |
| " 20 " " | ½ | 4 | 12.00 |
| Covers for fire or star pails. | | 1 | 3.35 |

KEELERS.

| | | Doz |
|---|---|---|
| A—20 in. | 7 in. deep. | 16.20 |
| B—19 " | " " | 15.00 |
| C—18½ " | " " | 14.00 |
| 1—17½ " | " " | 13.20 |
| 2—15½ " | 6 in. " | 12.00 |
| 3—13½ " | 5 in. " | 10.20 |
| 4—12 " | 4 in. " | 9.00 |

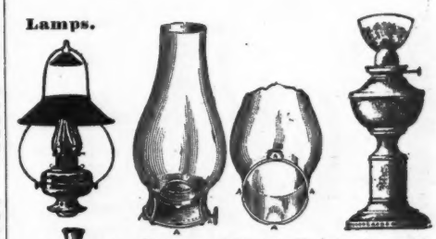
MILK OR VEGETABLE PANS.

13½ in. dia 3¼ in. deep, 6 quarts, $3.60 per doz.

WASH BASINS.

| | Doz. |
|---|---|
| 12½ in. | $4.80 |
| 12½ in. | 4.20 |
| 11½ in. | 3.60 |

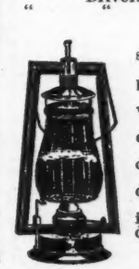
## Lamps.



Drummond Electric Hanging Lamp, 300 candle power, complete, each $3.50.
The electric lamp, 60 candle-power.
With decorated shades, nickel, per doz. $22.00
With opal plain shades, nickel, per doz. 18.00.
With decorated shades, brass, per doz. 21.00.
With opal plain shades, brass, per doz. 17.00.
Lamp chimney patent for Sun burners.
Per doz. No. 0, 50 cents. No. 1, 60c. No. 2, 75c.
Hitchcock nickel table lamp (No. 654), each $3.25
" " hanging " 656 " 7.25
" " bracket " 651 " 3.50
" " " with reflector 653 " 3.75
" French bronze bracket, with reflector, No 653, each $3.75.

Miners'.
Brass, Collar and Breast in one piece, Spout and Body in one piece.
Price, $9 per gross net.

Demmler Bros. Doz.
"Cherry" Miners' Lamps, double spout. $2.00
" Drivers' " " " 2.70
" " " single " 2.50



Harp, complete, with square tin shade, per doz., $9.50.
Complete, with Burner and chimney, per doz., $1.50.
Hurricane lanterns 25 cents extra with guards.
875, ⅝ wick, without guards, per doz., $5.00.
876, square safety lifting globe, per doz., $5.50.
877, ⅝ wick, safety lifting globe, per doz., $6.75.
Nickel plated diamond reflector reading lamp, 30 candle-power, $13.50, per doz.
Net
Illuminated night clock, per doz., $27.

PAPER LAMPS.
Lined with oil proof composition.

| | No. 0. | No. 1. | No. 2. |
|---|---|---|---|
| Height, | 2½ in. | 3 in. | 3¾ in. |
| Diameter, | 3½ in. | 2¼ in. | 2½ in. |
| Weight, ₱ doz., | 3¾ lbs. | 1¾ lbs. | 2 lbs |
| Price, $2.75 per doz. | $2.25 | | $2.75 |
| | No. 0. | No. 3. | No. 4. |
| Height, | 2½ in. | 5 in. | 6¼ in. |
| Diameter, | 3½ in. | 3½ in. | 4 in. |
| Weight, ₱ doz., | 3¾ lbs. | 3¾ lbs. | 7 lbs. |
| Price, $2.75 per doz. | $3.25 | | $4.50 |

Dis., 20%.

**Laundry Appliances.**

Washing Machine.

THE CATARACT.

All Metal.

Cubic Measurement 15 ft.

Price $20.

Rolls.

"Volunteer." Length, 10 in. x 1¾ in. dia. $40 doz.

"Volunteer." Length 11 in. x 1¾ in. dia. $50 per doz.

"Volunteer." Length 12 in. x 1¾ in. dia. $60 per doz. Dis., 40%.

"Volunteer." Two independent pressure screws,

"Daisy." Length, 10 in. x 1¾ in. dia. $30 per doz.

"Daisy." Length, 12 in. x 1¾ in. dia. $18 per doz. Dis., 40%.

"Empire." Length, 10 in. x 1¾ in. dia. $63 per doz.
"Empire." Length, 11 in. x 1¾ in dia. $74 per doz.
"Empire." Length, 12 in. x 1⅞ in. dia. $84 per doz.
"Empire." Length, 12 in. x 1⅞ in. dia. $87 per doz.
"Empire." Length, 14 in. x 2¼ in. dia. $156 per doz.
"Empire." Length, 14 in. x 2¼ with pulleys. $220 per doz.
"Empire." Length, 16 in. x 2½ with pulleys. $360 per doz.
Dis., 40%.

EMPIRE CLOTHES DRYING BARS. $10 per doz. Dis., 40%.

Closed.

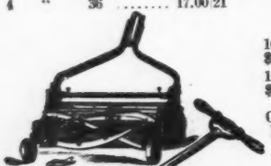
Open for use.

**Lawn Mowers.**

Forward Cut Mowers.

| In. | Lbs. | | In. | Lbs. | |
|---|---|---|---|---|---|
| 0 | Weight, 30¾ | $13.00 | 16 | Weight, 38 | $19.00 |
| 2 | " 31½ | 15.00 | 18 | " 41 | 21.00 |
| 4 | " 36 | 17.00 | 21 | " | 34.00 |

Dis. 60 and 5%.



| 10 in. | 12 in. | 14 in. |
|---|---|---|
| $13.00 | $15.00 | $17.00 |
| 16 in. | 18 in. | 20 in. |
| $19.00 | $21.00 | $23.00 |

24 in., $30.00.
Geared at both ends.
Dis. 60 and 5 and 5%.

10 in. Croquet, 18 pound, mower..... $11.00
10 in..... 13.00
12 in..... 15.00
14 in..... 17.00
16 in..... 19.00
18 in..... 21.00
20 in..... 23.00

Dis., 60 and 5% and 5% cash 30 days, f.o.b. New York.

New Excelsior Horse Lawn Mower.

| | | |
|---|---|---|
| 25 in. cut, | without shafts or seat | $65.00 |
| 30 " | with shaft and seat | 110.00 |
| 5 " | " " " | 135.00 |
| 0 " | " " " | 170.00 |
| Horse boots, per set | | 12.00 |

Dis. 50%.

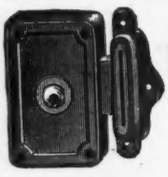
Excelsior Three-Blade Mower and Roller.
8 in., $11.00; 10 in., $13.00; 12 in., $15.00; 14 in., $17.00; 16 in., $19.00; 18 in., $21.00; 20 in., $23.00.
Dis. 60% and 5% cash 30 days f.o.b. New York.

**Link Belting.** Price per running foot, net.

| No. | Price. | No. | Price |
|---|---|---|---|
| 25 | $0.13 | 78 | $0.40 |
| 32 | .13 | 83 | .45 |
| 33 | .12 | 85 | .50 |
| 34 | .13 | 88 | .50 |
| 35 | .14 | 95 | .60 |
| 12 | .16 | 103 | .75 |
| 15 | .16 | 105 | .70 |
| 51 | .20 | 106 | .90 |
| 52 | .25 | 107 | .80 |
| 55 | .22 | 108 | .80 |
| 57 | .24 | 109 | .90 |
| 62 | .30 | 114 | 1.10 |
| 56 | .30 | 122 | 1.50 |
| 57 | .30 | 124 | 1.30 |
| 75 | .35 | 146 | 1.40 |
| 77 | .35 | | |

Sprocket wheels..... 25%

**Locks.**



YALE PATENT. RIM STORE LATCH.

| | Per doz. |
|---|---|
| 3 × 5 in., 4 keys | $48.00 |
| 2½ × 4 in., 3 keys | 39.00 |

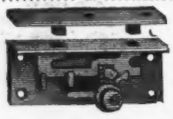
RIM NIGHT LATCH.
Spring lock, 3 keys..... 18.00
Dead lock, 3 keys..... 25.00

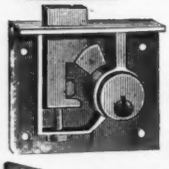
NIGHT LATCH.
Escutcheon..... 39.00
" ..... 36.00

MORTISE DEAD LOCK.
4⅝ × 3½..... 45.00
2⅝ × 3½..... 24.00

CUPBOARD LOCKS.
Plated Nose..... 13.20
Brass Nose..... 12.00

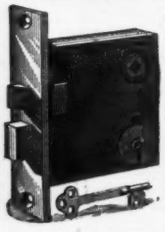
CUPBOARD
Dead Lock..... 10.80
Spring Lock..... 13.80





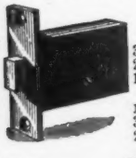
CHEST LOCKS.
Plated nose..... 19.20
Brass " ..... 18.00

DRAWER LOCK.
Plated nose ..... 10.20
Brass " ..... 9.00



KNOB LOCKS.

| | |
|---|---|
| 5 × 3⅛ | 22.50 |
| 5 × 3⅛ | 20.00 |
| 4¼ × 3⅛ | 13.25 |
| 3½ × 3⅛ | 10.50 |



STANDARD LATCHES.
Dead locks.

| | |
|---|---|
| 3¾ × 2¾ | 24.00 |
| 2½ × 3⅛ | 14.00 |
| 1¾ × 2⅜ | 12.00 |

NIGHT LATCHES.

| | |
|---|---|
| 3¼ × 3⅝ | 20.00 |
| 2½ × 3¾ | 18.00 |

DRAWER LOCKS.
2 × 1⅝, two tumblers.
Plated nose..... 7.50
Brass " ..... 6.00
Three tumblers.
Plated nose..... 9.00
Brass " ..... 7.50

RIM FLUSH DRAWER LOCK.
2 in. diameter.

| | 2 tumblers. | 3 tumblers. |
|---|---|---|
| Plated nose | 7.50 | 9.00 |
| Brass " | 6.00 | 7.50 |

BRONZE SPRING PADLOCK.
2 flat steel keys.

| In. | |
|---|---|
| 1 | 11.00 |
| 1¼ | 12.00 |
| 1½ | 13.50 |
| 1¾ | 14.50 |
| 2 | 16.00 |
| 2¼ | 17.50 |

Subject to special net prices; no discount

YALE KEYS.

**Machinery—Foot Power.**

Engine Lathes

8 in. swing, 20 in. bet. centers, 36 in. bed, 240 lbs. weight, $60.
8 in. swing, 30 in. bet. centers, 46 in. bed, 260 lbs. weight, $70.
8 in. swing, 36 in. bet. centers, 52 in. bed, 280 lbs. weight, $75.

Boxing for export, $2.50 extra; f.o.b. at Cincinnati, 25 % dis.

SAWS AND LATHES

Victor Scroll Saw, Cuts to 3 Inches.

24-inch swing, with 12 saw blades.... $4
Dis., 20%.

Empire Scroll Saw, Cuts to 3 Inches.

24-in. swing, drill and tilting table.
Price, boxed..... $25
Dis., 20%

The Acme Combination Saw.

Hand or steam power.
Adjustable table and gauges.

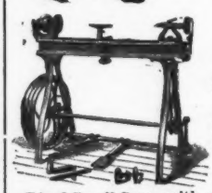
| | |
|---|---|
| Price, boxed | $40 |
| Scroll saw attachment | 7 |
| Boring attachment | 10 |
| Moulding attachment | 10 |

Dis., 20%.

Paragon Self Feed Rip Saw.
Two changes of speed; three changes of feed.
Price, with one 10 in. saw, $50.00
Dis., 20%.

Diamond Mortising Machine.
With mortise ¼ to 1 in. wide, 3 in. deep.
" cut tenons ⅛ to ¾ thick, 3 in. wide.
Price, with 3 chisels..... $25.00
Dis., 20%

The "Star" Lathe.
Swings 9 × 25 in., back geared screw cutting.
Feeds in or out, right or left. Adjustable Tail Stock for Tapers.
Price..... $75.00
Dis., 15%.



The Crown Lathe.
Swings 10 × 36 in.

| | |
|---|---|
| Price, boxed | $45.00 |
| Compound slide rest | 15.00 |
| Countershaft | 10.00 |

Dis., 20%.

Rival Scroll Saw, with six extra saw blades, twist drill and wrench.

| | |
|---|---|
| Price | $10.00 |
| Lathe attachment | $3.00 |

Dis., 25%.

The Challenge Scroll Saw, for shell, bone wood, or metal.
Nickel Plated, with six extra saws, twist drill and wrench.
Boxed..... $20.00
With lathe attachment..... $5.00
Dis. 25%.

Hand Circular Rip Saw.

Cuts 3¾ thick, 19 in. wide.

Price $50.00.

Dis.,

Scroll and Circular saw Combined.
Combined Machines.
Combined circular scroll saw and boring attachment—2 circular saws, 12 assorted scroll saws, boring attachment, and self-centering drill chuck..... $50.00
Combined circular and scroll saw—2 circular and 12 scroll saws..... 40.00
Circular saw—1 extra rip and 1 cross-cut saw..... 35.00
Scroll saw—12 assorted scroll saws..... 32.00
Counter shaft for steam power..... 10.00
Dis., 33%.

Foot Power Former. $20.00; Knives extra, $1.00 each. Dis., 35%.

Mortising Machine. $22.00; Chisels, $1.00 each.

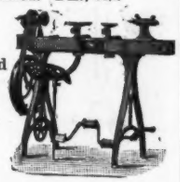
Dis., 35%.

Blind Slat Chisels, 3 set bits, $5.00. Dis., 20%.

Tenoning Machine, Price, $25. Dis., 35%.

Velocipede Scroll Saw,

Without boring attachment.....$20.00
With " " ..... 23.00
1 doz. saw blades, 1 3-16 bit. } Included. Dis., 35%.



Lathe.

centres, 1 spur, 2 tool rests and sockets, 1 turned face-plate, $35.

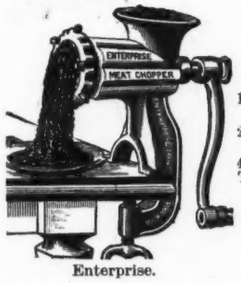
Dis., 30%.

Lathe.

One turned face-plate, two pointed and one spur center, two rests, with sockets and plate for hand tools, slide rest wrench, belting, etc., $40.

Dis., 25%.

**Meat Cutters.**




5, each.....$2.00
10, " ..... 3.00
22, " ..... 4.00
41, " ..... .50.00
This is a power machine.

Dis., 40%.

Enterprise.

**Motors (Water).**

Size No. 8, for Sewing Machines, etc , $18 each.

No. 9, ⅛ horse-power (30 lbs. pressure), ¼ h. p. (50 lbs.), ½ h. p. 100 lbs.), ¾ h. p. (150 lbs.), 1 h. p. (200 lbs.), $30.

No. 10, ¼ horse-power (30 lbs. pressure), ½ h. p. (50 lbs.), 1 h. p. (100 lbs.), 1½ h. p. (150 lbs.), 2 h. p. (200 lbs.), $50.

No. 10½, ½ horse-power (30 lbs. pressure), 1 h. p. (50 lbs), 2 h. p. (100 lbs.), 3 h. p. (150 lbs.), 4 h. p. (200 lbs.), $75.

No. 11, 1 horse-power (30 lbs. pressure), 1½ h. p. (50 lbs.), 3 h. p. (100 lbs.), 4½ h. p. (150 lbs.). 6 h. p. (200 lbs.), $100.

No. 12, 2 horse-power (30 lbs. pressure), 3 h. p. (50 lbs.), 6 h. p. (100 lbs.), 9 h. p. (150 lbs.), 12 h. p. (200 lbs.), $175.

No. 13, 3 horse-power (30 lbs. pressure), 5 h. p. (50 lbs.), 10 h. p. (100 lbs.), 15 h. p. (150 lbs.), 20 h. p. (200 lbs.), $285.

Dis., 40%.

Governors for 11 and 12, $25 extra; for No. 13, $35 extra.

Concentrating Machinery.

Blake Improved Crusher: 10x7, weight 7,500; $410.00.

Blake Improved Crusher: 15x9, weight 9,000; $580.00.

Discount 25%.

Cornish Crushing Rollers: 20 diameter, 10 face, weight 5,400; $450.00.

Cornish Crushing Rollers: 20 diameter, 14 face, weight 6,000; $500.00.

Cornish Crushing Rollers: 22 diameter, 14 face, weight 9,500; $625.00.

Cornish Crushing Rollers: 27 diameter, 14 face, weight 13,000; $750.00.

Cornish Crushing Rollers: 30 diameter, 14 face, weight 15,000; $850.00.

Discount 25%.

Complete Sizing Arrangement, consisting of Revolving Screens of Steel Sheet and Hydraulic Classifier.

For Concentrator, 25 tons capacity, $250; 50 tons capacity, $350; 75 tons capacity, $450; 100 tons capacity, $600. Discount, 10 per cent.

Automatic working Jig Machines, all complete, woodwork included, with eccentric motion: 2 sieves, $140; 3 sieves, $160; 4 sieves, $450.

With Eccentric Motion, all complete, woodwork included: 1 sieves, $200; 2 sieves, $270; 3 sieves, $320; 4 sieves, $330.

Automatic working Double Jig Machines, all complete, woodwork included: 4 sieves, $210; 6 sieves, $335; 8 sieves, $423. Discount, 25 per cent.

Single Rittinger Percussion Tables, all the iron parts, $350; Double Rittinger Percussion Tables, all the iron parts, $500. Discount, 10 per cent.

Improved Rotary Tables, all the iron parts and pipes, $200. Discount, 25 per cent.

**Nails and Tacks.**

Swedes. Tacks.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Per doz. | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | |
| ½ wt.. | 35 | 40 | 46 | 50 | 55 | 60 | 65 | 75 |
| 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 oz. |
| 85 | 1.00 | 1.20 | 1.40 | 1.60 | 1.75 | 1.85 | 2.15 | 2.55 |
| Doz. full | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 |
| weight | 60 | 70 | 80 | 90 | 1.00 | 1.10 | 1.20 | 1.40 |
| 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 oz. |
| 1.60 | 1.90 | 2.30 | 2.70 | 3.10 | 3.40 | 3.80 | 4.20 | 5.00 |
| lb., bulk | ½ | ¾ | 1 | 1½ | 2 | 2½ | 3 | 4 |
| or paper | 1.60 | 1.25 | 1.00 | 80 | 66 | 58 | 52 | 46 |
| 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 24 |
| 36 | 32 | 31 | 30 | 29 | 28 | 28 | 28 | 28 |

Discount, 67½, 10 and 2%.

O. H. Swedes.

Price, same as Swedes. Swedes steel tacks same list price as iron.

Discounts, 72½, 10 and 2%.

Upholsterers.

Price, same as Swedes.

Cut Tacks. Price per dozen ounces.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | 10 |
| ¼ wt..... | .. | .. | .. | .. | 35 | 40 | 45 | 50 | 55 |
| | 12 | 14 | 16 | 18 | 20 | | | | |
| | 60 | 70 | 80 | 90 | 1.00 | | | | |
| ½ wt..... | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | 10 |
| | 45 | 50 | 50 | 55 | 60 | 65 | 70 | 80 | 95 |
| | 12 | 14 | 16 | 18 | 20 | | | | |
| | 1.10 | 1.25 | 1.40 | 1.55 | 1.70 | | | | |
| Full wt... | 1 | 1½ | 2 | 2½ | 3 | 4 | 6 | 8 | |
| | 80 | 90 | 90 | 1.00 | 1.10 | 1.20 | 1.30 | 1.50 | |
| | 10 | 12 | 14 | 16 | 18 | 20 | | | |
| | 1.80 | 2.10 | 2.40 | 2.70 | 3.00 | 3.30 | | | |

Discount, 70, 10 and 2%.

Carpet Tacks, flat and oval heads.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Blued, doz. | oz. | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| ¼ wt. .... | | 35 | 40 | 45 | 50 | 55 | 65 | 75 | 85 | 95 |
| | | 22 | 24 | | | | | | | |
| | | 1.05 | 1.15 | | | | | | | |
| " ½ wt. | | 4 | 6 | 8 | 10 | 12 | 14 | 16 | | |
| | | 65 | 70 | 80 | 95 | 1.10 | 1.25 | 1.40 | | |
| | | 18 | 20 | 22 | 24 | | | | | |
| | | 1.55 | 1.70 | 1.85 | 2.00 | | | | | |
| Tinned, doz. ¼ wt. | | 4 | 6 | 8 | 10 | 12 | 14 | 16 | | |
| | | 50 | 55 | 60 | 75 | 85 | 1.00 | 1.10 | | |
| | | 18 | 20 | 22 | 24 | | | | | |
| | | 1.20 | 1.35 | 1.45 | 1.60 | | | | | |
| Tinned, doz. ½ wt. | | 4 | 6 | 8 | 10 | 12 | 14 | | | |
| | | 95 | 1.05 | 1.15 | 1.40 | 1.60 | 1.85 | | | |
| | | 16 | 18 | 20 | 22 | 24 | | | | |
| | | 2.10 | 2.35 | 2.60 | 2.85 | 3.10 | | | | |

Discount, 72½, 10 and 2%.

Finishing Nails.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Inch.... | ⅜ | 3½-8 | 4-8 | 4½-8 | ⅝ | 5½-8 | 6-8 | 7-8 | 1 |
| Per lb... | 48 | 40 | 32 | 28 | 26 | 24 | 22 | 20 | 18 |

1½ and larger. 16

Discount, 60, 10 and 2%.

Chair Nails.

Doz. ⅛ wt. ; doz. full wt.; pound B. or P.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Inch.. | ⅜ | 3½-8 | 4-8 | 4½-8 | ⅝ | 5½-8 | 6-8 | 7-8 |
| Per lb. | 51 | 43 | 35 | 31 | 29 | 27 | 25 | 23 |
| | 1 | 1½ | | | | | | |
| | 21 | 19 | | | | | | |

Discount, 60, 10 and 2%.

Common and patent brads.

| inch. | Price per doz. ⅛ wt. | Price per doz. full wt. | Price per lb. in papers or bulk. |
|---|---|---|---|
| 2-8 | .50 | 1.00 | 1.25 |
| 3-8 | .60 | 1.20 | .80 |
| 4-8 | .65 | 1.30 | .58 |
| 5-8 | .72 | 1.44 | .48 |
| 6-8 | .80 | 1.60 | .36 |
| 7-8 | .90 | 1.80 | .30 |
| 1 | 1.00 | 2.00 | .26 |
| 1½ | 1.12 | 2.24 | .25 |
| 1¼ | 1.26 | 2.52 | .24 |
| 1½ | 1.82 | 3.64 | .22 |
| 1¾ | 2.25 | 4.50 | .20 |
| 2 | 2.43 | 4.86 | .18 |

Dis. 60, 10 and 2%.

**Oils.** LUBRICATING.

Lubroleine A cylinder oil 50 in. barrels.
Lubroleine D cylinder oil 40 in. barrels.
Lubroleine A machine oil 45 in. barrels.
Lubroleine B machine oil 35 in. barrels.
Lubroleine A engine oil 50 in. barrels.
Lubroleine B engine oil 40 in. barrels.
In cases 5c gal. extra.
Crescent Axle Grease.—Barrels, 3c per lb; 100-lb. kegs 3½c lb.; 2-lb. decorated tins, $12, gross less 5 per cent.
Texas Star Axle Grease.—Barrels, 2½c per lb.; 100-lb. kegs, 3c per lb.
See Axle Grease, page 2.

**Packing.**

Eureka, 75c. per lb. Dis., 40%.
Soapstone—Standard, 8c. per lb.
XX. 11c. per lb.
Crown—No. 1, 23c. per lb.
No. 2, 26c. per lb.
Climax, 90. per lb. Net.

SELDEN'S PATENT.

For Steam, Air, Water and Ammonia.
With Rubber Core, 60 cents per lb.
Dis., 35 and 5%.
With canvas core, 50 cents per lb.
Dis., 35 and 5%.

**Portable Houses.**

Weight, 450 lbs.

Price, $150.

Closes securely.

Dis., 10%.

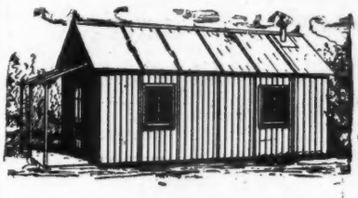
Weight, 85 lbs. per section.

Price, $220.

Dis., 10%.

No. 10.—26 × 33 ft., including veranda and rear extension. Main part, 19 × 26 ft.....$500.00

Dis., 10%.



F. o. b. Cars Chicago or New York

| Size. | Doors. | Windows. | No. porch. | End porch | Side porch. |
|---|---|---|---|---|---|
| 7 × 9 | 1 | 2 | $64.00 | $71.00 | $73.00 |
| 7 × 12 | 1 | 2 | 75.00 | 82.00 | 87.60 |
| 7 × 16 | 1 | 2 | 90.00 | 97.00 | 106.00 |
| 7 × 19 | 2 | 4 | 117.00 | 124.00 | 136.00 |
| 10 × 9 | 1 | 2 | 70.00 | 80.00 | 79.00 |
| 10 × 12 | 1 | 2 | 92.00 | 102.00 | 104.00 |
| 10 × 16 | 1 | 4 | 108.00 | 118.00 | 124.00 |
| 10 × 19 | 2 | 4 | 134.00 | 144.00 | 153.00 |
| 10 × 26 | 2 | 4 | 172.00 | 182.00 | 198.00 |
| 10 × 32 | 2 | 6 | 203.00 | 213.00 | 235.00 |
| 12 × 12 | 1 | 2 | 102.00 | 114.00 | 114.00 |
| 12 × 16 | 2 | 4 | 138.00 | 150.00 | 154.00 |
| 12 × 19 | 2 | 4 | 160.00 | 172.00 | 179.00 |
| 12 × 26 | 2 | 4 | 193.00 | 205.00 | 219.30 |
| 12 × 32 | 2 | 6 | 245.00 | 257.00 | 277.00 |

**Post Hole Diggers.**

Little Giant..... $36.00 doz 11 cu.ft.
Hercules..... 30.00 " " " "
New Champion.... 20.00 " " " "
Scheidler..... 36.00 " " "

Dis. 40% f.o.b. New York or Boston.

**Press.**

Combined press for cutting, forming, horning and seaming.

Particulars of flat front presses, including beds, slides, bolsters, plates, etc.

Prices are net, delivered on steamers in New York, including insurance, etc.

| | | | | | |
|---|---|---|---|---|---|
| Nominal size of press | 41 | 42 | 43 | 44 | 450 |
| Price, including et ceteras | $130 | $200 | $260 | $420 | $660 |
| Weight, about...lbs | 600 | 1050 | 1900 | 3600 | 7200 |
| Greatest diameter that can be wired...ins | 5 | 7 | 10 | 14 | 20 |
| Greatest depth that can be wired...ins | 8 | 10 | 13 | 16½ | 20 |
| Hole through bed—circle intersecting...ins | 4½ | 6 | 8¼ | 12 | 17 |
| Hole through back—width...ins | 8 | 9½ | 12 | 15½ | 20½ |
| Width between die clamps—clear...ins | 8 | 11 | 15 | 20 | 27 |
| Distance back from center of slide bar...ins | 4½ | 5½ | 7 | 9 | 12 |
| Height to slide-bar, when up..ins | 5¼ | 6½ | 7¼ | 8½ | 9 |
| Stroke of slide-bar...ins | 1 | 1¼ | 1½ | 1¾ | ? |
| Adjustment of slide-bar...ins | 1 | 1¼ | 1½ | 1¾ | |
| Diameter of fly-wheel...ins | 20 | 26 | 32 | 38 | 44 |
| Width of fly-wheel...ins | 3 | 4 | 5 | 6 | 7 |
| Weight of fly-wheel, about...lbs | 125 | 250 | 420 | 725 | 1100 |
| Speed per minute, about...rev | 120 | 110 | 100 | 90 | 80 |
| Cubic feet boxed, about | 30 | 40 | 50 | 60 | 70 |

**Printers' Sundries.**

Wood rules, 12 cents per yard.
Wood rules, on end wood, 15 cents per foot.

EUREKA STAND.
12 full cases.

Price without cases.....$12.00
Boxing and cartage..... 1.36

### SHOOTING STICKS.

Each.
No. 1, 75c.
No. 2, $1.
No. 4, 45c., black.
No. 4, 60c., bright.
No. 5, 60c., black.
No. 5, 75c., bright.

### GAUGE PINS—ALL SIZES.

Brass, 40c. doz. | Steel, 60c. doz.
Wire, 25c. doz. | Golden, 40c. doz.

### MITRE BOXES.

Regular size, 2 in., 50c. each.
Extra size, 3½ in., 75c. each.

### LEAD CUTTER.

Curtis' Lead Cutter ..... $2.00

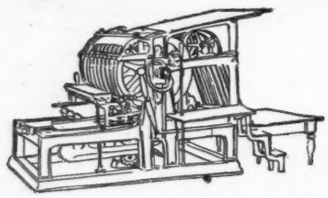
### PROOF PRESS, "OUR OWN."

9 × 32, complete, with Brayer ..... $28.00

### THE GLOBE PRESS.

8 x 12 in. inside clear, with throw-off ..... $150.00
9 x 13 in. inside clear, with throw-off ..... 175.00
10 x 15 in. inside clear, with throw-off ..... 200.00
11 x 17 in. inside clear, with throw-off ..... 250.00
Steam fixtures ..... 15.00
Fountain ..... 12.50

Dis. 20%.



THE "LIBERTY" CYLINDER PRESS.

For Newspaper and Job Printing.

| | Bed. | Form. | |
|---|---|---|---|
| No. 5 | 29 × 42 | 24 × 40 | $1,200 |
| 6 | 33 × 47 | 28½ × 45 | 1,300 |
| 7 | 37 × 51 | 33 × 49 | 1,600 |

Dis., 20 and 5%.

THE "LIBERTY" JOB PRINTING PRESS.

Size of chase.

| | | | |
|---|---|---|---|
| No. 2 | 7 × 11 | | $200 |
| 2a | 9 × 13 | | 250 |
| 3 | 10 × 15 | | 300 |
| 3a | 11 × 17 | | 350 |
| 4 | 13 × 19 | | 400 |
| 5 | 14½ × 22 | | 500 |

Dis., 12% and 5%.

Two sizes built extra strong for boxmakers, embossing, etc.

| | | |
|---|---|---|
| No. 3a | 11 × 17 | $375 |
| 4 | 13 × 19 | 425 |

Dis., 12 and 5%.

Fountains, either size, $25 extra, if ordered with press. Steam fixtures, either size, $15 extra.

### THE AMERICAN CARD AND BILL HEAD PRESS.

| | | |
|---|---|---|
| No. 5 | 4 × 6 | $10 |
| 7 | 6 × 9 | 36 |
| 8 | 8 × 12 | 61 |

Dis., 20% and 5%.

### THE "LIBERTY" PAPER CUTTER.

Cuts 30 inches ..... $140.00
Extra knife ..... 18.80

Dis., 12% and 5%.

### THE "LIBERTY" IMPOSING TABLES

Marble top.

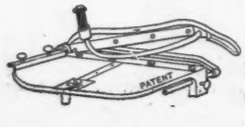
| | | |
|---|---|---|
| No. 1 | 24 × 36 | $24 |
| 2 | 32 × 48 | 38 |
| 3 | 26 × 74 | 44 |
| 4 | 36 × 48 | 48 |

Dis., 12% and 5%.

Slate Top.

| | | |
|---|---|---|
| No. 1 | 24 x 36 | $18 |
| 2 | 32 x 48 | 25 |
| 3 | 26 x 74 | 32 |

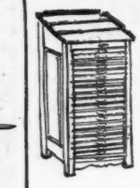
Dis., 12 ½ and 5%.



Kelsey & Co.,

The Eagle card and Paper Cutter, 24¼ inch, $12 each, $100 per doz.

### THE "LIBERTY" TYPE CABINETS.



| Number of cases. | Stained. Flat. $ | Stained. Galley.* $ | Grained. Flat. $ | Grained. Galley.* $ |
|---|---|---|---|---|
| 12¼ | 12.00 | 14.50 | 14.00 | 17 00 |
| 16½ | 15.00 | 17.50 | 17.00 | 20.00 |
| 18⅝ | 16.50 | 19.00 | 18.50 | 21.50 |
| 20⅞ | 18.00 | 20.50 | 20.00 | 23.00 |
| 12¾ | 15.00 | 17.50 | 17.00 | 20.00 |
| 16¾ | 18.00 | 20.50 | 20.00 | 23.00 |
| 18¾ | 19.50 | 22.00 | 21.50 | 24.50 |
| 20¾ | 22.00 | 24.50 | 23.00 | 26.00 |
| 12 full | 18.00 | 20.50 | 20.00 | 23.00 |
| 16 " | 22.00 | 24.50 | 24.00 | 27.00 |
| 18 " | 24.00 | 26.50 | 26.00 | 29.00 |
| 20 " | 26.00 | 28.50 | 28.00 | 31.00 |

| Number of cases. | Pine. Flat. $ | Pine. Galley.* $ | Cherry. Flat. $ | Cherry. Galley.* $ | Napanoch. Flat. $ | Napanoch. Galley.* $ | Walnut. Flat. $ | Walnut. Galley.* $ |
|---|---|---|---|---|---|---|---|---|
| 12¼ | 18.00 | 21.00 | 20.00 | 23.00 | 22.00 | 25.00 | 23.00 | 26.00 |
| 16½ | 22.00 | 25.00 | 24.00 | 27.00 | 26.00 | 29.00 | 27.00 | 30.00 |
| 18⅝ | 24.00 | 27.00 | .... | .... | .... | .... | .... | .... |
| 20⅞ | 26.00 | 29.00 | 28.00 | 31.00 | 30.00 | 33.00 | 31.00 | 34.00 |
| 12¾ | 21.00 | 24.00 | 23.00 | 26.00 | 25.00 | 28.00 | 26.00 | 29.00 |
| 16¾ | 25.00 | 28.00 | 27.00 | 30.00 | 29.00 | 32.00 | 30.00 | 33.00 |
| 18¾ | 27.00 | 30.00 | .... | .... | .... | .... | .... | .... |
| 20¾ | 29.00 | 32.00 | 31.00 | 34.00 | 33.00 | 36.00 | 34.00 | 37.00 |
| 12 full | 24.00 | 27.00 | 26.00 | 29.00 | 28.00 | 31.00 | 29.00 | 32.00 |
| 16 " | 28.00 | 31.00 | 30.00 | 33.00 | 32.00 | 35.00 | 33.00 | 36.00 |
| 18 " | 30.00 | 33.00 | .... | .... | .... | .... | .... | .... |
| 20 " | 32.00 | 35.00 | 34.00 | 37.00 | 36.00 | 39.00 | 37.00 | 40.00 |

—*Furnished with galley top and extra drawer for copy.

Dis., 20 and 5%.

### THE "LIBERTY" CASE STANDS AND RACKS.

Stands.

| | |
|---|---|
| Single, without racks | $3.75 |
| " with racks for 8 full cases | 4.00 |
| Single, with racks for 10 full cases | 4.25 |
| Single, with racks for 12 full cases | 4.50 |
| Single, with racks for 14 full cases | 4.75 |
| Double, without racks | 4.25 |
| " with racks for 8 full cases | 4.50 |
| Double, with racks for 16 full cases, and gal. rest | 6.25 |
| Double, with racks for 20 full cases and gal. rest | 6.50 |
| " " " " 24 " " " " " | 6.75 |
| " " " " 24 ⅔ cases | 5.25 |
| " " " " 8 full and 8 ⅔ cases | 5.00 |
| " " " " 8 " " 8 ¾ " | 5.25 |
| " " " " 10 " " 12 ⅔ " | 5.55 |
| " " " " 12 " " 16 ⅔ " | 5.70 |
| " " " " 12 " " 16 ¾ " | 6.05 |
| Stands with closed ends, extra | 2.00 |
| Extra slides for stands, each | .00 |

### GALLEY RACKS.

From $3 up.

LEAD CUTTERS, From $2 up.

D and 5%.

### THE "LIBERTY" TYPE CASES.

| Name. | Outside Measurements. |
|---|---|
| Full size | 32¼x16½x1 9-16 |
| Rooker size | 28½x14¾x1 9-16 |
| ¾ size | 26x16½x1⅝ |
| ⅔ size | 23⅝x16½x1⅝ |
| Enlarged size | 32¼x23x2 3-16 |
| Wood type " | 32¼x23x1 9-16 |
| Mammoth " | 44x23x1 9-16 |

Cabinet case sides extend 1½ to 3 inches. In ordering cabinet cases, state whether high or low fonts are wanted.

### THE "LIBERTY STEEL SHOOTING STICKS.

Bright, $1 each.
Nickelplated, $1.25 each.
Dis., 40%.

### STANDARD METAL FURNITURE

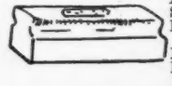
25c. a pound.
In fonts of 25, 50, 75 and 100 lbs.
Dis., 15%.

### THE "LIBERTY" MALLETS.

| | |
|---|---|
| Hickory, small | $ .20 |
| " medium | .25 |
| " large | .30 |
| " iron bound | 1.00 |
| Lignum Vitæ, No. 4 | .30 |
| " " No. 3 | .40 |
| " " No. 2 | .50 |
| " " No. 1 | .70 |

Dis. 20 and 5%.

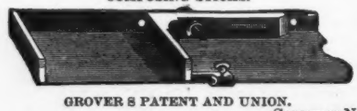
### THE "LIBERTY" PLANERS AND PROOF PLANERS.



| | |
|---|---|
| Midget planer | 10c. |
| Small Maple | 20c. |
| Large " | 25c. |
| " b'k'd with leather | 30c. |
| Midget " " " | 12c. |
| Proof planer, faced with cloth | 50c. |

Dis., 40%.

### COMPOSING STICKS.



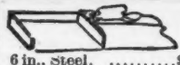
### GROVER S PATENT AND UNION.

Screw or News.

| | |
|---|---|
| 6 in. | $ .90 |
| 8 " | 1.10 |
| 10 " | 1.20 |
| 12 " | 1.40 |
| 14 " | 1.60 |
| 16 " | 1.80 |
| 18 " | 2.00 |
| 20 " | 2.20 |

Composing rules, 14 ems pica and under, 25 cents.

### THE "LIBERTY" COMPOSING STICKS.



Grover.

| | | | |
|---|---|---|---|
| 6 in., Steel | $ .90 | 16 in., Steel | $1.80 |
| 8 " | 1.00 | 18 " | 2.00 |
| 10 " | 1.20 | 20 " | 2.20 |
| 12 " | 1.40 | Extra Clasp | .10 |
| 14 " | 1.60 | Extra Knee | .40 |

Screw.

| | | | |
|---|---|---|---|
| 6 in., Steel | $ .75 | 16 in., Steel | $1.45 |
| 8 " | .80 | 18 " | 1.60 |
| 10 " | 1.00 | 20 " | 1.75 |
| 12 " | 1.15 | Extra Knee | .30 |
| 14 " | 1.30 | " Screw and Nut. | .10 |

Dis., 40%.

Yankee.

| | | | |
|---|---|---|---|
| 6-in., Steel | $ .75 | 12 in., Steel | $1.15 |
| 8 " | .80 | Extra Knee | .30 |
| 10 " | 1.00 | " Clamp and Screw | .15 |

Other Sizes to Order.

Dis., 40%.

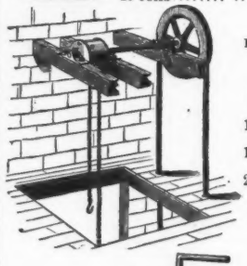
Albion.

| | | | |
|---|---|---|---|
| 6-in., Steel | $1.00 | 6-in, German Silver | $1.50 |
| 8 " | 1.10 | 8 " " " | 1.75 |
| Extra Knee | .40 | Extra Screw and Nut. | .10 |

### Pulley Blocks.

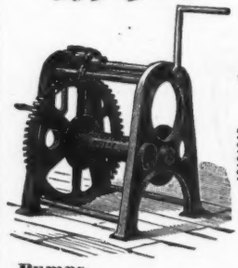
WESTON DIRECT.

| | Each. |
|---|---|
| ⅛ ton | $10 |
| ¼ ton | 13 |
| ½ ton | 15 |
| 1 ton | 20 |
| 1½ tons | 25 |
| 2 tons | 30 |
| 3 tons | 40 |
| **Geared.** | |
| 1 ton | 45 |
| 2 tons | 35 |
| 3 tons | 60 |
| 4 tons | 80 |
| 5 tons | 110 |
| 6 tons | 150 |
| 8 tons | 210 |
| 10 tons | 250 |



DOUBLE LIFT HOISTS FOR HATCHWAYS, ETC.

| | |
|---|---|
| 500 lbs | $25.00 |
| 1000 " | 50.00 |
| 1500 " | 65.00 |
| 2000 " | 80.00 |
| 500 " | 30.00 |



WESTON CRAB SAFETY BRAKE, HANDLES CANNOT FLY BACK.

| | Each. |
|---|---|
| 21 | $35.00 |
| 22 | 45.00 |
| 23 | 65.00 |
| 25 | 100.00 |

### Pumps.

Prices on all pumps include cylinders.

| No. | Dia. Cyl. | Suction. | Cap. stroke. | Price—Iron. | Price—Brass cyl. |
|---|---|---|---|---|---|
| 0 | 2 in. | 1 in. | 1-15 gal. | $3.50 | ..... |
| 1 | 2¼ " | 1 " | 1-12 " | 4.00 | $6.00 |
| 2 | 2⅝ " | 1¼ " | 1-11 " | 4.50 | 7.00 |
| 3 | 2½ " | 1¼ " | 1-10 " | 5.00 | 8.00 |
| 4 | 3 " | 1¼ " | 1-6 " | 5.50 | 10.00 |
| 5 | 3¼ " | 2 " | 1-5 " | 6.50 | 14.00 |
| 6 | 3½ " | 2 " | 1-4 " | 8.00 | 18.00 |
| 7 | 4 " | 2½ " | 1-3 " | 12.00 | 20.00 |

Dis., 65%.

| | | | | | |
|---|---|---|---|---|---|
| 1 | 2½ in. | 1¼ in. | 1-10 gal. | 4.25 | ..... |
| 2 | 3 " | 1¼ " | 1-7 " | 4.75 | ..... |
| 3 | 3½ " | 1¼ " | 1-5 " | 5.25 | ..... |
| 4 | 4 " | 1½ " | 1-4 " | 5.75 | ..... |
| 5 | 4½ " | 1½ " | 1-3 " | 6.25 | ..... |

Dis., 70%.

Standard and Cylinder for 1¼ in. Iron Pipe, $16.00. Dis., 55%

No. 6½, standard and cylinder, 1¼ in pipe, $13.00.
No. 7½, standard and cylinder, 1¼ in. pipe, $15.00.
No. 8½, standard and cylinder, 1½ in. pipe, $18.00.
With hose and discharge pipe, add $3.00 to list price.
Dis. 55%.

No. 1, diam. cyl., 2½ in.; cap. stroke 1-8 gal.; size pipe, 1¼ in. Price, iron, $12.50; brass cyl., $17.50.
No. 2, diam. cyl., 3 in.; cap. stroke, 1-6 gal.; size pipe, 1¼ or 1½ in. Price, iron, $14.50; brass cyl., $18.50.
No. 3, diam. cyl., 4 in.; cap. stroke, 2-5, gal.; size pipe, 1½ or 2 in. Price, iron, $23.50; brass cyl., $34.50.
Dis., 55%.

No. 1, diam. cyl., 3 in.; suction, 1¼ in. cap. stroke, 3-10 gal. Price, iron, $28.00; brass cyl., $58.00.
No. 2, diam. cyl., 4 in.; suction. 1¼ in.; cap. stroke, 1-2, gal. Price, iron, $32.00; brass cyl., $60.00.
No. 3, diam. cyl., 5 in ; suction, 2 in.; cap stroke, 6-7 gal. Price, iron, $35.00; brass, cyl., $90.00.
No. 4, diam. cyl., 6 in.; suction, 2½ in.

cap. stroke, 1 1-5 gal. Price, iron, $45.00; brass cyl. $120.00. Dis., 45%.

| No. | Diam. cyl. | Cap. stroke. | Stroke. | Pipe. | Price. |
|---|---|---|---|---|---|
| 0 | 2 in. | 1-11 gal. | 7 in. | 1 in. | $21.50 |
| 00 | 2½ " | 1-7 " | 7 " | 1 " | 23.00 |
| 1 | 3 " | 1-5 " | 7 " | 1¼ " | 25.25 |
| 2 | 3½ " | 1-3 " | 7 " | 1½ " | 27.25 |
| 3 | 4 " | 4-10 " | 7 " | 2 " | 30.50 |
| 3½ | 4½ " | 1-2 " | 7 " | 2 " | 37.50 |
| 4 | 5 " | 8-10 " | 10 " | 2½ " | 44.00 |
| 4½ | 5½ " | 1 " | 10 " | 2½ " | 47.00 |
| 5 | 6 " | 1 1-5 " | 10 " | 3 " | 50.00 |

Dis., 40%.

| No. | Diam. cyl. | Cap. stroke. | Diam. pipe. | Price. Iron. | Br's cyl. |
|---|---|---|---|---|---|
| 1 | 2 in | 1-5 gal. | 1 in. | $39 | $51 |
| 2 | 2½ " | 1-3 " | 1¼ " | 41 | 56 |
| 3 | 3 " | 1-2 " | 1½ " | 45 | 62 |
| 4 | 3½ " | 6-7 " | 2 " | 51 | 81 |
| 5 | 4 " | 7-8 " | 2 " | 63 | 114 |
| 6 | 4½ " | 1 " | 2 " | 80 | 155 |

Dis., 40%.

With Tight and Loose Pulleys.

No. 1, cap. per rev., 1-6 gal.; size of pipe, 1¼ in.; price, iron, $26; bronze, $45.

No. 2, cap. per rev., 1-5 gal.; size of pipe, 1½ in.; price, iron, $31; bronze, $55.

No. 4, cap. per rev., 1-3 gal.; size of pipe, 2 in.; price, iron, $48; bronze, $75.

Pulleys on Nos. 1 and 2 are 8 in. diam., 2½ in. face; on No. 4, 12 in. diam., 3½ in face.

Balance wheels for above pumps. $1, $2, and $3, according to size. Dis., 45%.

No. 2, ½ to 2 gal. per min.; length of drive pipe, 25 to 40 ft.; calibre of pipes, drive, ¾ in.; discharge, ⅜ in.; price, $9.

No. 3, 1 to 4 gal per min.; length of drive pipe, 25 to 40 ft.; calibre of pipes, drive, 1 in.; discharge, ⅜ in.; price, $11.

No. 4, 2 to 8 gal. per min.; length of drive pipe, 25 to 40 ft.; calibre of pipes, drive 1¼ in; discharge ½ in; price $14

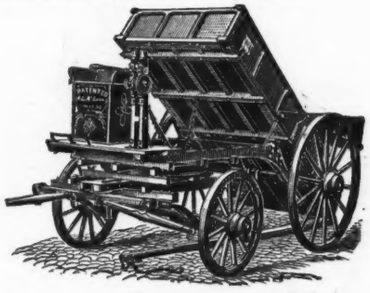
No. 5, 3 to 14 gal, per min.; length of drive pipe, 25 to 40 ft.; calabre of pipes, drive 2 in; discharge 1 in; price $22.

No. 6, 4 to 25 gal. per min.; length of drive pipe, 30 to 40 ft.; calibre of pipes, drive, 2½ in.; discharge, 1¼ in.; price, $40.

No. 7, 8 to 60 gals. per min.; length of drive pipe, 30 to 40 ft.; calibre of pipes, drive, 4 in.; discharge, 2 in.; price, $75.

No. 8, 12 to 120 gal. per min.; length of drive pipe, 30 to 50 ft.; calibre of pipes, drive, 6 in.; discaarge, 2½ in.; price, $125. Dis., 45%.

**Railroad Dumping Cars and Carts.**



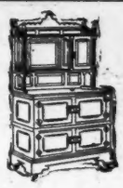
| Cars. | Gauge. | Cap. | Net | Cap. | Net | Cap. | Net |
|---|---|---|---|---|---|---|---|
| Side Dumping | 24" | 1 c. y. | $55 | 2 c. y. | $65 | 3 c. y. | $75* |
| End " | " | " | 55 | " | 65 | " | 75* |
| Revolving " | " | " | 70 | " | 80 | " | 90* |
| Bottom " | " | " | 80 | " | 90 | " | 100* |
| Tunnel | " | " | 55 | " | 65 | " | 75* |
| Mine | " | " | 50 | " | 60 | " | 70* |
| Plantation | 30" | | 43 | | | | |
| Logging | 36" | | 170 | | | | |
| " | 4' 8½" | | 185 | | | | |
| Hand | 36" | | 45 | | | | |
| " | 4' 8½" | | 50 | | | | |
| Push | 36" | | 40 | | | | |
| " | 4' 8½" | | 45 | | | | |
| R.R. Construction | 36" | | 60 | | | | |
| " | 4' 8½" | | 65 | | | | |
| Carts. | | | | | | | |
| Plantation and Railroad Wagons. | | | 45 to 75 | | | | |
| McEwen Patent Dumping | | 1 " | 175 | 1½ " | 200 | | |

*These cars built of any gauge from 18" to 56½" and of any capacity from ½ to 6 cu. yd.

**Refrigerators.**

Indurated Fibre and Stoneware-Lined.

| No. | High. | Wide. | Nos. 75, 85. Deep. | Price. |
|---|---|---|---|---|
| 35 | 46¼ | 28¾ | 20¼ | $20.00 |
| 75 | 44¼ | 33¾ | 23½ | 28.00 |
| 85 | 47¾ | 38 | 23½ | 34.00 |



No. 2. No. 6.

| No. | High | Wide. | Deep. | Price. |
|---|---|---|---|---|
| 2 | 41 | 46 | 26 | $36.00 |
| 6 | 84 | 46 | 26 | 60.00 |

Mirror 16 by 18 in. Dis., 40 and 2½%.

**Rat Traps.**

1 doz. in box.

1 gross in case.

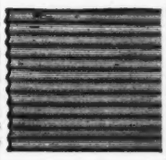
$30 per gross.

Dis. 50 and 10%.

**Roofing.**

CORRUGATED IRON.

2½ inch corrugations.



| Gauge. | Per square |
|---|---|
| No. 18, painted red | $9.10 |
| No. 20, " " | 7.60 |
| No. 22, " " | 6.50 |
| No. 24, " " | 5.35 |
| No. 26, " " | 4.65 |
| No. 27, " " | 4.35 |
| No. 28, " " | 4.00 |
| No. 18, galvanized | 13.30 |
| No. 20, " | 10.60 |
| No. 22, " | 9.10 |
| No. 24, " | 7.45 |
| No. 26, galvanized | 7.05 |
| No. 27, " | 6.95 |
| No. 28, " | 6.75 |

Dis., 10%. F. o. b. N. Y.

**Sash Chains.**

No. A. "Giant" metal, 15c. per ft., wts. not over 125 lbs.

No. 1. "Giant" metal, 12c. per ft., wts. not over 75 lbs.

No. 2. "Giant" metal, 10c. per ft., wts. not over 40 lbs.

No. 0. "Giant" metal, 8c. per ft., wts. not over 25 lbs.

No. 1. Red metal, 10c. per ft. wts. not over 40 lbs.

No. 2. Red metal, 8c. per ft., wts. not over 30 lbs.

No. 0. Red metal, 6c. per ft. wts. not over 15 lbs.

No. 1. Steel, 8c. per ft., wts. not over 75 lbs.

No. 2. Steel, 6c. per ft., wts. not over 30 lbs.

No. 0. Steel, 4c. per ft., wts. not over 15 lbs.

No. 1. Steel, black enameled, 9c. per ft., wts. not over 75 lbs.

No. 2. Steel, black enameled, 7c. per ft., wts. not over 30 lbs.

No. 0. Steel, black enameled, 5c. per ft., wts. not over 15 lbs.

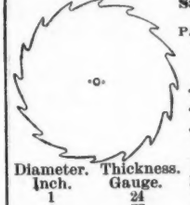
Fastenings for hanging a window of 2 sashes for Nos. 1 and 2 chains, consisting of 4 hooks, 4 rings, 4 sash irons, a set, 18c. per set.

Fastenings for hanging a window of 2 sashes for No. 0 chains, 14c. per set.

| Dis. on | | | | |
|---|---|---|---|---|
| "Giant" metal chain | 40 | 10 | 10% | |
| " " Red metal chain | 40 | 10 | 10 | 10% |
| " " Steel " " | 40 | 10 | 10 | 10% |
| " " Fastenings | 40 | 10 | 10% | |

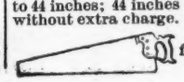
**Saws.**

PATENT GROUND AND TEMPERED SOLID TOOTH CIRCULAR SAWS.



| Diameter. Inch. | Thickness. Gauge. | Size of hole— Inch. | Price each. | Extra for each additional gauge, heavier. | Prices for beveling new saws (grinding or beveling old saws, extra).— Per gauge. |
|---|---|---|---|---|---|
| 1 | 24 | ⅜ | $0.50 | $0.01 | $0.06 |
| 2 | 23 | ⅜ | .60 | .01½ | .08 |
| 3 | 21 | ⅜ | .70 | .02½ | .10 |
| 4 | 19 | ¾ | .90 | .03 | .14 |
| 6 | 18 | ¾ | 1.30 | .05 | .18 |
| 8 | 18 | ⅞ | 1.75 | .08 | .22 |
| 10 | 16 | 1 | 2.30 | .12 | .28 |
| 12 | 15 | 1 | 3.00 | .17 | .35 |
| 16 | 14 | 1¼ | 5.50 | .25 | .50 |
| 20 | 13 | 1 5-16 | 8.50 | .35 | .70 |
| 24 | 11 | 1⅜ | 12.00 | .55 | .90 |
| 28 | 10 | 1½ | 16.00 | .80 | 1.20 |
| 32 | 10 | 1⅝ | 20.00 | 1.00 | 1.40 |
| 36 | 9 | 1⅝ | 25.50 | 1.40 | 1.70 |
| 40 | 9 | 2 | 35.00 | 2.00 | 2.00 |
| 44 | 8 | 2 | 52.50 | 3.00 | 2.40 |
| 48 | 8 | 2 | 70.00 | 4.00 | 2.80 |
| 52 | 7 | 2 | 90.00 | 5.00 | 3.25 |
| 56 | 7 | 2 | 115.00 | 7.00 | 3.75 |
| 60 | 6 | 2 | 145.00 | 9.00 | 4.25 |
| 64 | 6 | 2 | 180.00 | 12.00 | 5.00 |
| 68 | 5 | 2 | 225.00 | 18.00 | 5.75 |
| 72 | 5 | 2 | 290.00 | 24.00 | 6.55 |
| 76 | 5 | 2 | 375.00 | 30.00 | 7.50 |

Circular saws to cut metal or ivory, 50% advance. No extra charge for saws one gauge thicker than list. Circular saws beveled one gauge without extra charge up to 44 inches; 44 inches and larger, beveled two gauges without extra charge. Dis., 4 %.

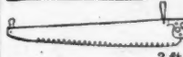


Hand—London Spring Steel; four brass screws.
26 in. $30.00 per doz. Dis., 20%.

Hand—Skew Back Saw, Apple Handle; 5 screw.
26 in. $22.00 per doz.

Hand—Grained Blade, Beec handle, polished edge; 4 screws.
26 in. $20.00 per doz.

Dis., 20%



One man Cross-Cut—Supplementary Handle.

| | 3 ft. | 3½ ft. | 4 ft. | 4½ ft. | 5 ft. | 5½ ft. | 6 ft. |
|---|---|---|---|---|---|---|---|
| Great American, | $2.75 | $3.00 | $3.50 | $4.00 | $4.50 | $5.00 | $5.50 |
| Champion Tooth, | 2.35 | 2.60 | 3.15 | 3.50 | 3.85 | 4.25 | 4.65 |

One man cross cut handles, $4.50 per doz. Dis., 45%.

**Saw Set.**

Adjustable ball and socket saw clamp,

Japanned, $14 per doz.

**Scales.**—Discount on scales, 50, 10 and 5 per cent.

Postal scales.

No 1, capacity ½ to 9 oz. $3.00.

No. 2, capacity ½ to 12 oz. $4.00.

No. 3, capacity ½ to 34 oz. $6.00

No. 4, capacity ½ oz. to lbs., $8.00

Butter Trip Scales, slab, weights and scoop.

| | | | |
|---|---|---|---|
| No. 7, ¼ oz. to 10 lbs., | 10 in. slab, | without side beam | $10.50 |
| " " " " " | " " | with " | 11.50 |
| " 8 " 20 lbs., | 12 in. " | without " | 12.50 |
| " " " " " | " " | " " | 13.50 |

Tea Scales—All Seamless Scoops.

| Capacity. | Scoop. | Capacity. | Scoop. |
|---|---|---|---|
| ¼ oz. to 10 lbs. | Tin ..$8.00 | ⅛ oz. to 10 lbs. | Brass .. 9.00 |

Druggists.

| Capacity. | Scoop. | Capacity. | Scoop. |
|---|---|---|---|
| 1-16 oz. to 8 lbs. | Tin ..$10.00 | 1-16 oz. to 8 lbs. | Brass..$11.00 |

Even balance trip scales, seamless scoop, with weights.

No. 1, capacity ½ oz. to 2 lbs., tin scoop, $5.50 brass scoop, $6.50.

No. 2, capacity ½ oz. to 4 lbs., tin scoop, $6.50; brass scoop, $7.50.

No. 2½, capacity ½ oz. to 18 lbs , tin scoop, $11; brass scoop, $12.50.

Counter.

| Capacity. | Scoop. | Capacity. | Scoop. |
|---|---|---|---|
| ½ oz. to 36 lbs. | Tin ..$10.00 | ½ oz. to 36 lbs. | Brass..$12.00 |

Grocer.

| Capacity. | Scoop. | Capacity. | Scoop. |
|---|---|---|---|
| ½ oz. to 62 lbs. | Tin ... $12.00 | ½ oz. to 62 lbs. | Brass..$14.00 |

Meat or Butter Scales, with Slab.

| | | |
|---|---|---|
| ½ oz. to 62 lbs., | with Single Beam | $14.00 |
| " " " " | Double " | 15.00 |

Patent Boston platform, 13½ in. long by 10 in. wide.

Pillar, 18 in. high, double beam, marked both sides.

With large seamless tin scoop, $25.00
" " " brass " 27.00

Platform scales.—Without Wheels.

| No. | Capacity. | Platform. | Price. |
|---|---|---|---|
| | 400 lbs. | 21½ by 15 inches. | $23.00 |
| | 600 lbs. | 25 by 16 " | 30.00 |
| | 800 lbs. | 25 by 17 " | 34.00 |
| | 1,000 lbs. | 26 by 17 " | 39.00 |
| | 1,200 lbs. | 28 by 20 " | 45.00 |
| | 1,600 lbs. | 29 by 21 " | 55.00 |
| | 2,000 lbs. | 32 by 23 " | 70.00 |

With Wheels.

| No. | Capacity. | Platform. | Price. |
|---|---|---|---|
| 1 | 400 lbs. | 21½ by 15 inches. | $26.00 |
| 2 | 600 lbs. | 25 by 16 " | 33.00 |
| 3 | 800 lbs. | 25 by 17 " | 38.00 |
| 4 | 1,000 lbs. | 26 by 17 " | 43.00 |
| 5 | 1,200 lbs. | 28 by 20 " | 49.00 |
| 6 | 1,600 lbs. | 29 by 21 " | 60.00 |
| 7 | 2,000 lbs. | 32 by 23 " | 75.00 |

Brass sliding poise at same price if so specified in order

With Wheels and Drop Lever.

| No. | Capacity. | Platform. | Price. |
|---|---|---|---|
| 4 | 1,000 lbs. | 26 by 17 inches. | $51.00 |
| 5 | 1,200 lbs. | 28 by 20 " | 59.00 |
| 6 | 1,600 lbs. | 29 by 21 " | 70.00 |
| 7 | 2,000 lbs. | 32 by 23 " | 82.00 |
| 8 | 2,500 lbs. | 33¼ by 24¾ " | 94.00 |
| 9 | 3 000 lbs. | 38 by 30 " | 125.00 |

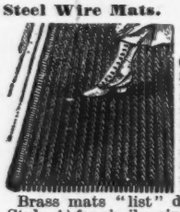
**Shears.** The Patent "Eureka

No. 1 cuts round metal up to ¼ in. steel to ⅛, $12.

No. 2 cuts round metal up to ⅛ in., steel to 3-16, $20.

Discount, 25%.

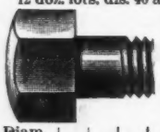
**Steel Wire Mats.**



| Galvanized Steel Ware. | | (Style A) "Hartman Flexible." |
|---|---|---|
| No. 2. | Size 16x24. | Each ..$1.50 |
| No. 3. | " 18x30. | " .... 2.00 |
| No. 4. | " 22x36. | " .... 3.00 |
| No. 5. | " 26x48. | " .... 4.50 |
| No. 6. | " 30x48. | " .... 5.25 |
| No. 7. | " 36x48. | " .... 6.50 |
| No. 8. | " 36x60. | " .... 8.00 |
| No. 9. | " 36x72. | " ....10.00 |

Brass mats "list" double the price of galvanized Style A) for similar sizes.
3 doz. lots, dis. 33 1-3%.
6 doz. lots, dis. 40%.
12 doz. lots, dis. 40 and 5%.

**Screws.**



STEEL SCREWS ADD 50% TO LIST.
Prices are per 100.
Hexagon Cap Screws.
Heads on Steam-tight Screws not polished, unless so ordered. Can make these 12 inches long.

| Diam. head. | 7-16 | ½ | 9-16 | ⅝ | ¾ | 13-16 | ⅞ | 1 | 1⅛ | 1¼ | 1⅜ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Length head. | ¼ | 5-16 | ⅜ | 7-16 | ½ | 9-16 | ⅝ | ¾ | ⅞ | 1 | 1⅛ |
| Diam. screw. | ¼ | 5-16 | ⅜ | 7-16 | ½ | 9-16 | ⅝ | ¾ | ⅞ | | 1⅛ |
| ¾ | 3.00 | 3.25 | 3.75 | 4.40 | 5.50 | 7.00 | | | | | |
| 1 | 3.25 | 3.50 | 4.00 | 4.70 | 5.70 | 7.00 | 9.50 | | | | |
| 1¼ | 3.50 | 3.75 | 4.25 | 5.00 | 6.00 | 7.50 | 9.50 | 12.20 | | | |
| 1½ | 3.75 | 4.00 | 4.50 | 5.30 | 6.30 | 8.00 | 10.00 | 12.20 | 16.00 | | |
| 1¾ | 4.00 | 4.25 | 4.75 | 5.60 | 6.60 | 8.50 | 10.60 | 12.80 | 16.60 | 21.20 | |
| 2 | 4.25 | 4.60 | 5.05 | 5.95 | 7.00 | 9.10 | 11.20 | 13.40 | 17.20 | 22.30 | 29.00 |
| 2¼ | | 5.00 | 5.40 | 6.35 | 7.50 | 9.70 | 11.90 | 14.10 | 17.90 | 23.60 | 30.50 |
| 2½ | | | 5.80 | 6.80 | 8.00 | 10.40 | 12.70 | 14.90 | 18.80 | 25,10 | 32.30 |
| 2¾ | | | | 7.30 | 8.60 | 11.20 | 13.60 | 15.90 | 20.00 | 26.90 | 34.40 |
| 3 | | | | | 9.30 | 12.10 | 14.70 | 17.00 | 21.80 | 29.00 | 37.00 |
| Thread to in. | 20 | 18 | 16 | 14 | 12 | 12 | 11 | 10 | 9 | 8 | 7 |
| Add for each ¼ in. | 30 | 40 | 50 | 60 | 80 | 1.00 | 1.30 | 1.60 | 2.00 | 2.40 | 3.00 |

Dis., heads ground, 60%; dis., heads black, 60 and 5%; dis., heads extra finish, 50%; dis., heads case-hardened, 5%; dis., heads polished after hardening, 45%.

SQUARE CAP SCREWS.

| Diam. head. | 5/16 | 7-16 | ½ | 9-16 | ⅝ | 11/16 | ¾ | ⅞ | 1⅛ | 1¼ | 1⅜ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Length head. | ¼ | 5-16 | ⅜ | 7-16 | ½ | 9-16 | ⅝ | ¾ | ⅞ | 1 | 1⅛ |
| Diam screw. | ¼ | 5-16 | ⅜ | 7-16 | ½ | 9-16 | ⅝ | ¾ | ⅞ | 1 | 1⅛ |
| ¾ | 2.40 | 2.75 | 3.20 | 3.80 | 4.40 | 5.75 | | | | | |
| 1 | 2.60 | 2.95 | 3.40 | 4.00 | 4.70 | 5.75 | 7.70 | | | | |
| 1¼ | 2.75 | 3.10 | 3.65 | 4.20 | 4.95 | 6.05 | 7.70 | 10.50 | | | |
| 1½ | 2.90 | 3.30 | 3.85 | 4.45 | 5.25 | 6.35 | 8.25 | 10.50 | 14.00 | | |
| 1¾ | 3.05 | 3.50 | 4.10 | 4.70 | 5.55 | 6.65 | 8.80 | 11.10 | 14.80 | 18.00 | |
| 2 | 3.25 | 3.70 | 4.35 | 4.95 | 5.90 | 7.05 | 9.40 | 11.80 | 15.70 | 19.00 | 22.50 |
| 2¼ | | 4.00 | 4.65 | 5.25 | 6.30 | 7.55 | 10.10 | 12.60 | 16.70 | 20.20 | 24.00 |
| 2½ | | | 5.00 | 5.60 | 6.75 | 8.15 | 10.90 | 13.50 | 17.80 | 21.50 | 25.80 |
| 2¾ | | | | 6.00 | 7.25 | 8.85 | 11.80 | 14.60 | 19.10 | 23.10 | 27.90 |
| 3 | | | | | 7.80 | 9.65 | 12.80 | 15.90 | 20.60 | 25.00 | 30.50 |
| Thread to in. | 20 | 18 | 16 | 14 | 12 | 12 | 11 | 10 | 9 | 8 | 7 |
| Add for each ¼ in. | 25 | 35 | 45 | 55 | 65 | 90 | 1.20 | 1.50 | 1.80 | 2.30 | 3.00 |

Dis., heads ground, 65%; dis., heads black, 65 and 5%; dis., heads extra finish, 55%; dis., heads case hardened, 60%; dis., heads polished-hardened, 50%.

MILLED HEADS, COLLAR SCREWS

| Diameter of Collar. | ¼ | 11/32 | 7/16 | ½ | ⅝ | 11/16 | 13/16 | 15/16 | 1 | 1¼ |
|---|---|---|---|---|---|---|---|---|---|---|
| Diameter of Screw. | 1/6 | 3/16 | ¼ | 5/16 | ⅜ | 7/16 | ½ | 9/16 | ⅝ | ¾ |
| ¾ | 2.50 | 2.80 | 3.10 | 3.75 | 4.40 | 5.00 | 6.25 | | | |
| 1 | 2.80 | 3.10 | 3.40 | 4.05 | 4.70 | 5.30 | 6.60 | 8.25 | | |
| 1¼ | 3.10 | 3 40 | 3.70 | 4.35 | 5.00 | 5.60 | 7.00 | 8.60 | 11.25 | |
| 1½ | 3.45 | 3.70 | 4 00 | 4.70 | 5.30 | 5.95 | 7.40 | 9.00 | 11.90 | 15.00 |
| 1¾ | | 4.05 | 4.35 | 5.05 | 5.65 | 6.35 | 7.80 | 9.45 | 12.60 | 15.60 |
| 2 | | | 4.70 | 5.45 | 6.25 | 6.85 | 8.40 | 10.00 | 13.35 | 16.25 |
| 2¼ | | | | 5.95 | 6.85 | 7.40 | 9.00 | 10.60 | 14.15 | 17.10 |
| 2½ | | | | | 7.50 | 8.10 | 9.60 | 11.25 | 15.00 | 18.00 |
| 2¾ | | | | | | 8.75 | 10.30 | 11.90 | 15.90 | 19.00 |
| 3 | | | | | | | 11.00 | 12.60 | 16.85 | 20.00 |
| Threads to inch | 40 | 30 | 20 | 18 | 16 | 14 | 12 or 13 | 12 | 11 | 10 |
| Add for each ¼ inch. | 30 | 40 | 50 | 60 | 80 | 1.00 | 1.30 | 1.60 | 2.00 | 2.40 |

MILLED FROM SOLID BAR.

| | Fillister. | Bevel Head. | | | | | | | Button Head | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diam. Head | 3-16 | ¼ | ⅜ | 7-16 | 9-16 | ⅝ | ¾ | 13-16 | ⅞ | 1 |
| Length Head | 1/6 | 3-16 | ¼ | 5-16 | ⅜ | 7-16 | ½ | 9-16 | ⅝ | ¾ |
| Diam. Screw | 1/6 | 3-16 | ¼ | 5-16 | ⅜ | 7-16 | ½ | 9-16 | ⅝ | ¾ |
| ¾ | 2.00 | 2.25 | 2.50 | 3.00 | 3.50 | 4.00 | 5.00 | | | |
| 1 | 2 25 | 2.50 | 2.75 | 3.25 | 3.75 | 4.25 | 5.30 | 6.60 | | |
| 1¼ | 2.50 | 2.75 | 3.00 | 3.50 | 4.00 | 4.50 | 5.60 | 6.90 | 9.00 | |
| 1½ | 2.75 | 3.00 | 3.25 | 3.75 | 4.25 | 4.75 | 5.90 | 7.20 | 9.50 | 12.00 |
| 1¾ | | 3.25 | 3.50 | 4.00 | 4.50 | 5.00 | 6.20 | 7.50 | 10.00 | 12.50 |
| 2 | | | 3.75 | 4.35 | 5.00 | 5.50 | 6.75 | 8.00 | 10.75 | 13.00 |
| 2¼ | | | | 4.75 | 5.50 | 6.00 | 7.25 | 8.50 | 11.50 | 13.75 |
| 2½ | | | | | 6.00 | 6.50 | 7.75 | 9.00 | 12.00 | 14.50 |
| 2¾ | | | | | | 7.00 | 8.25 | 9.50 | 12.75 | 15 25 |
| 3 | | | | | | | 8.75 | 10.00 | 13.50 | 16.00 |
| Threads to inch. | 40 | 30 | 20 | 18 | 16 | 14 | 12 | 12 | 11 | 10 |

Head on Bevel and Button Head Screws, 1-16 larger in diameter than above specifications.
Price, according to size of head.
Discount, 50%; case hardened, 45%; case hardened and polished, 35%.

**Soups (French).**

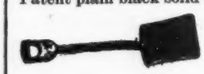
| | Per dozen. In Cans—Quarts. | Pints. | In Glass. 1½ pt. |
|---|---|---|---|
| Green turtle | $8.00 | $4.32 | $9.00 |
| Terrapin | | | |
| Chicken | 3.75 | 2.25 | |
| Mulligatawny | | | |
| Mock turtle | | | |
| Ox tail | | | |
| Consommé | | | 4.50 |
| Tomato | | | |
| Julienne | | | |
| Printanier | 3.50 | 2.10 | |
| French bouillon | | | |
| Mutton broth | | | |
| Vegetable | | | None in glass. |
| Beef | | | |
| Pea | | | |

Packed in cases of..... 2 doz. 4 doz. 1 doz.
Regular Assorted Cases. In Cans—Quarts.
2 Chicken, 1 Mulligatawny, 3 Mock Turtle, 3 Ox Tail, 2 Consommé, 2 Tomato, 3 Julienne, 1 Printanier, 1 Mutton Broth, 1 Vegetable, 1 Beef, 2 French Bouillon, 2 Pea. Per doz., $3.55.
In Glass.
11 Chicken, 1 Mulligatawny, 2 Mock Turtle, 1 Ox Tail, 2 Consommé, 2 Tomato, 1 Julienne, Printanier, 1 Mutton Broth.
Terms cash Discounts: 5% for lots of 10 cases, 10% for lots of 25 cases. 15% for lots of 50 cases.

**Spades and Shovels.**

JONES

Patent plain black solid cast-steel shovels and spades.

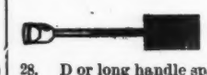


Patent solid steel shovel.

| No. | | Per Doz. Black. | Per Doz. Pol's'd |
|---|---|---|---|
| 20. | D. or long handle sq.-point shovels. 2 | $15.50 | $16.50 |
| 21. | " " " " " 3 | 16.25 | 17.25 |
| 22. | " " " " " 4 | 17.00 | 18.50 |
| 23. | " " " " " 6 | 17.50 | 19.00 |
| 24. | " " " " charcoal. 8 | 20.50 | 22.00 |

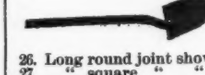
Pt. plain back solid cast steel shovel.

| | | | |
|---|---|---|---|
| 25. | D or long handle round-point shovels. 3 | 16.25 | 17.25 |



Patent solid cast steel spade.

| | | | |
|---|---|---|---|
| 28. | D or long handle spades..... 2 | 16.00 | 17.00 |
| 29. | " " " " ..... 3 | 16.50 | 18.00 |



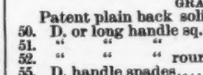
Patent plain back solid cast steel.

| | | | |
|---|---|---|---|
| 26. | Long round joint shovel No. 2..... | 15.50 | 16.50 |
| 27. | " square " " No. 2..... | 15.50 | 16.50 |
| 32. | D. handle square-point molders' shovels..... 2 | ..... | 17.00 |
| 33. | D. handle square point railroad, extra heavy..... 2 | 15.75 | |
| 34. | D. handle round point railroad, extra heavy ..... 3 | 16.50 | |
| 35. | L. handle round point shovel, with foot cap..... 2 | 16.00 | 17.00 |

GRAY'S CAST.

Patent plain back solid-steel shovels and spades.

| | | | |
|---|---|---|---|
| 50. | D. or long handle sq.-point shovels. 2 | $12.00 | $13.00 |
| 51. | " " " " " 3 | 12.75 | 14.00 |
| 52. | " " " round point " 3 | 12.75 | 14.00 |
| 55. | D. handle spades..... 2 | 12.25 | 13.25 |
| 56. | " " " ..... 3 | 13.00 | 14.25 |



Patent solid corrugated cast steel scoop.

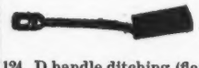
SCOOPS.

Jones' patent plain back solid corrugated cast steel scoops.

| | | | |
|---|---|---|---|
| 90. | D. or long handle solid cast steel...2 | $13.50 | $14.50 |
| 91. | " " " " " ...4 | 14.50 | 15.50 |
| 2[illegible]. | " " " " " ...6 | 16.50 | 17.50 |

Jones' riveted scoops.

| | | | |
|---|---|---|---|
| 92. | Cast steel D. or long handle... ....2 | 13.50 | 14.50 |
| 93. | " " " " .....4 | 14.50 | 15.50 |
| 94. | " " " " .....6 | 16.50 | 17.50 |
| | | Half polished. | |
| 95. | " " " .....8 | | $20.00 |
| 96. | " " " .....10 | | 22.50 |
| 97. | " " " Loco- motive or coal (heavy).....6 | 17.50 | |
| 98. | " Long or D. handle for salt heavy)..... | 17.50 | |
| 99. | " D. handle flour and house furnace..... | 10.50 | |
| 100. | " D. handle r'd-pt. for coal (extra heavy)..... 6 | 20.00 | |
| 101. | " ash pit, furnace L. han- dle..... 2 | | Polished. 13.00 |
| 102. | " " " 32 in. D..2 | | 13.50 |
| 103. | " " " 42 " iron D. handle..... 2 | | 14.00 |



Ditching spade.

| | | | |
|---|---|---|---|
| 124. | D handle ditching (flat)..... ....18.00 | | 19.50 |
| 125. | D handle post hole (concave)..... 18.00 | | 19.50 |
| 126. | D handle Alcock (for clay and brick)....16.00 | | 17.00 |

Discount on shovels and spades, 50 and 10.
" " scoops, 50.
Boxed f.o.b. New York, Boston or Montreal.
The solid shovels, spades and scoops are made from cast steel bars by a recently patented process, the blade and strap being in one piece, not welded. All goods are American patterns.

**Stencil Inks.**

Black.

| No. | Per can. | Per cake. | No. | Per can. | Per cake. |
|---|---|---|---|---|---|
| 1 | 7 cents | 3 cents | 3 | 20 cents. | 12 cents |
| 2 | 10 " | 5 " | 4 | 30 " | 20 " |

Blue.

| | | | | | |
|---|---|---|---|---|---|
| 1 | 10 cents. | 6 cents | 3 | 30 cents. | 22 cent. |
| 2 | 15 " | 9 " | 4 | 50 " | 40 " |

Red and Green.

| | | | | | |
|---|---|---|---|---|---|
| 1 | 12 cents | 8 cents | 3 | 50 cents. | 42 cents |
| 2 | 20 " | 15 " | 4 | 90 " | 80 " |

Per doz. cans or cakes, net, per gross, 10% less.

Indelible Ink.

| | | |
|---|---|---|
| Small bottles per | 100 | $2.75 |
| " " | 500 | 12.00 |
| " " | 1,000 | 20.00 |

STENCIL COMBINATIONS.

Contains Alphabet, Figures, Brush. and Ink.

| | |
|---|---|
| ½ inch, per doz | $5.00 |
| ¾ " " | 5.40 |
| 1 " " | 5.75 |
| 1¼ " " | 7 50 |
| 1½ " " | 8.40 |
| 2 " " | 10.00 |
| 2½ " " | 15.00 |

Dis., 10%.

**Tools.** ARTISANS.

Chisel (Mason).

Stone, 5 and 8c. lb., net.

Mill Picks.
Cast steel, 2 to 3 1 $22 per doz.
Dis., 60 and 5%.

Stone Axes, Cast Steel.

All sizes, 50c. per lb.

Dis., 70 and 10%.

Five lbs. and over, 40c.; with teeth, 45c.; 3 to 5 lbs., 45c.; with teeth, 50c.; under 3 lbs., 50c.; with teeth, 55c.
Nos. 40 and 41, spalling or stone hammer, 5 lbs. and ver, 36c.; 3 to 5 lbs., 40c.; under 3 lbs., 45c. per lb.
Nos. 40 and 41, spalling hammers, 9 to 20 lbs., steel face per lb., 17c. Dis., 70 and 10%

Ship or Top Mauls, Steel Face, 4 to 8 lbs., 28c. per lb.

Dis., 50, 10 and 5%.

Steel Wedges, wood, 1st qual., 5c. lb.

Cooper Frows.

| | | |
|---|---|---|
| 8 in. | doz. | $13.00 |
| 10 in. | doz. | 13.50 |
| 12 in. | doz. | 14.00 |
| 14 in. | doz. | 14.50 |
| 16 in. | doz. | 15.00 |

Discount, 60%.

60 days, 2% 10 days.

Vise.

No 1. Solid Box Vises.

| | | Each. |
|---|---|---|
| No. 25, 3⅜ in. | Jaw | $12.00 |
| " 30, 3½ | " | 11.00 |
| " 55, 3⅝ | " | 10.00 |
| " 40, 4 | " | 10.50 |
| " 45, 4¼ | " | 11.00 |
| " 50, 4½ | " | 11.50 |
| " 55, 4⅝ | " | 12.00 |
| " 60, 4¾ | " | 13.00 |
| " 65, 4¾ | " | 14.00 |
| " 70, 5 | " | 15.00 |
| " 75, 5 | " | 16.00 |
| " 80, 5¼ | " | 17.50 |
| " 85, 5¼ | " | 18.50 |
| " 90, 5½ | " | 20.00 |
| " 95, 5¾ | " | 21.00 |
| " 100, 6 | " | 22.00 |
| " 105, 6 | " | 23.00 |
| " 110, 6¼ | " | 24.00 |
| " 115, 6¼ | " | 25.00 |
| " 120, 6½ | " | 26.00 |
| " 125, 6½ | " | 27.50 |
| " 130, 6¾ | " | 29.00 |

| | | Each. | | | Each. |
|---|---|---|---|---|---|
| No. 135, 6¾ in. | Jaw | $31.50 | No. 170, 7¼ in. | Jaw | $44.50 |
| " 140, 7 | " | 33.00 | " 180, 8 | " | 47.00 |
| " 145, 7 | " | 35.00 | " 190, 8 | " | 53.00 |
| " 150, 7 | " | 38.00 | " 200, 8 | " | 56.00 |
| 160, 7¼ | " | 41.50 | | | |

Dis., 60 and 10%.

MINERS.

Adze Eye Coal Picks.
Same list and dis. as No. 16.

Anthracite Coal Picks.
Same list and dis. as No. 16.

Stone Picks, per doz.
No. 18, 6 to 7 lbs...$16.50.
No. 18, 7 to 8 lbs... 17.50.
No. 18, 8 to 9 lbs... 18.50.
Dis., 60 and 5%.

| No. | | Coal Picks. | Per doz. |
|---|---|---|---|
| 16, Weight, 2 | lbs | | $8.50 |
| 16, " | 2½ | " | 9.00 |
| 16, " | 3 | " | 9.50 |
| 16, " | 3½ | " | 10.00 |
| 16, " | 4 | " | 10.50 |
| 16, " | 4½ | " | 11.00 |
| 16, " | 5 | " | 11.50 |
| 16, " | 5½ | " | 12.00 |
| 16, " | 6 | " | 12.50 |
| 16, " | 6½ | " | 13.00 |
| 16, " | 7 | " | 14.00 |

Packages charged at cost. Dis., 60%.

Adze Eye Miners Picks—Surface, Drifting and Poll.

| No. | | | Per doz. |
|---|---|---|---|
| 19, Surface. | No. 1, 4 | lbs. | $14.00 |
| 19, " | No. 2, 4½ | " | 15.00 |
| 19, " | No. 3, 5 | " | 16.00 |
| 19, " | No. 4, 5½ | " | 17.00 |
| 19, " | No. 5, 6 | " | 18.00 |
| 19, " | No. 6, 6½ | " | 19.00 |
| 19, " | No. 7, 7 | " | 20.00 |
| 20, Drifting, | No. 1, 3 | " | 12.50 |
| 20, " | No. 2, 4 | " | 14.00 |
| 20, " | No. 3, 4½ | " | 15.00 |
| 20, " | No. 4, 5 | " | 16.00 |
| 20, " | No. 5, 6 | " | 17.50 |
| 21, Poll, | No. 1, 3½ | " | 15.00 |
| 21, " | No. 2, 4 | " | 16.00 |
| 21, " | No. 3, 4½ | " | 17.00 |
| 21, " | No. 4, 5 | " | 18.50 |
| 21, " | No. 5, 6 | " | 20.00 |
| 21, " | No. 6, 6¾ | " | 21.50 |

Dis., 60, 10 and 5%.

Tamping Picks.

Adze eye, 6 to 7 lbs., per doz., $17.
Adze eye, 7 to 8 lbs., per doz., $18.
Adze eye, 8 o 9 lbs., per doz., $19.
Hunt eye, 6 to 7 lbs., per doz., $17.
Hunt eye, 7 to 8 lbs., per doz., $18.
Hunt eye, 8 to 9 lbs., per doz., $19.
Dis., 60 and 10%.

Ore Picks.

| No. | | | |
|---|---|---|---|
| 54, Adze Eye, | 5 to 6 lbs. | | ₱ doz. $12.00 |
| 54, " | 6 to 7 | " | " $13.00 |
| 54, " | to 8 | " | " $14.00 |

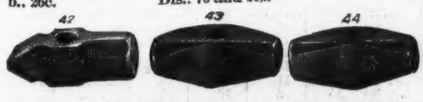
56, Steel Lake Superior Mining Pick

(Special Price and Quality.)

Dis, 60 and 10

Steel Face Hammers.

No. 43, hand drilling hammers, 2 to 5 lbs.; No. 45, napping hammers, 2 to 5 lbs.; No. 39, mason hammers, 3 to 8 lbs.; No. 42, smiths' hand hammers, 2 to 5 lbs.; No. 44, smiths' striking hammers, 2 to 5 lbs., all steel face, per lb., 26c. Dis., 70 and 10%.



No. 43, hand drilling hammer, 5 lbs. and over, 36c.; 3 to lbs., 40c.; under 3 lbs., 45c. per lb.
Dis., 70 and 10%.

Steel Face Sledges.
No. 34. Smiths' sledges, 6 to 30 lbs., steel face, 17c. per lb.
No. 35. Stone sledges, 6 to 30 lbs., steel face, 17c. per lb.
No. 36. Striking sledges, 6 to 30 lbs., steel face, 17c. per lb.
No. 37. Coal sledges, 5 to 10 lbs., steel face, 18c. per lb.

Cast Steel Sledges.
No. 34. Blacksmiths' sledge. 5 lbs. and over, 30c.; 3 to 5 lbs., 36c.; under 3 lbs., 45c. per lb.
No. 35. Stone sledge, 5 lbs. and over, 30c.; 3 to 5 lbs., 36c.; under 3 lbs., 45c. per lb.
No. 36. Striking sledge, 5 lbs. and over, 30c.; 3 to 5 lbs., 36c.; under 3 lbs., 45c. per lb.
No. 37. Coal sledge, 5 lbs. and over, 30c.; 3 to 5 lbs. 36c.; under 3 lbs., 45c. per lb.

Cast Steel.
No. 42, blacksmiths' hand hammer, 5 lbs. and over 30c.; 3 to 5 lbs., 34c.; under 3 lbs., 45c. per lb.
No. 44, drilling or striking hammer, 5 lbs. and over, 30c.; 3 to 5 lbs., 36c.; under 3 lbs., 45c. per lb.
No. 45, napping hammer, 5 lbs. and over, 30c.; 3 to 5 lbs., 35c., under 3 lbs., 45c. per lb.
Dis., 70 and 10%.

RAILROADS.

Railway Track Punch

Round Point.
15c. lb., net.

Tr: ck Wrench.

7¾ lb., net.

Ra Fork.

9c. lb. net.

Crow Bars.
Wedge Points, 3⅛c. lb., net.
Pinch Point, 3⅛c. lb., net.

65 Tamping Bar, 6c. lb., net.

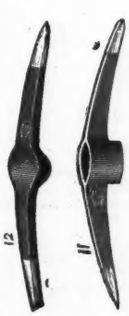
66 Claw Bar, 7c. lb., net.

Railroad Spike Mauls 6 to 16 lbs., Steel Face 18c. lb.

Dis., 50, 10, and 5%.

Steel Track Chisel, 15c. per lb., net.

Railroad or Clay Picks.



| No. | | | Per doz. |
|---|---|---|---|
| 11, Adze eye, | 4 to 5 | lbs | $11.00 |
| 11, " | 5 to 6 | " | 12.00 |
| 11, " | 6 to 7 | " | 13.00 |
| 11, " | 7 to 8 | " | 14.00 |
| 11, " | 8 to 9 | " | 16.00 |
| 11, " | 9 to 10 | " | 18.00 |
| 12, Hunt eye, | 4 to 5 | " | 11.00 |
| 12, " | 5 to 6 | " | 12.00 |
| 12, " | 6 to 7 | " | 13.00 |
| 12, " | 7 to 8 | " | 14.00 |

Dis., 60 and 10%.

Mattocks—Price per doz.
2, Adze Eye, Long Cutter, 6 lbs., $16.00.
3, Adze Eye, Short Cutter, 5½ lbs., $15.50.
2, Adze Eye, Long Cutter, Light, $15.00.
3, Adze Eye, Short Cutter, Light, $15.00.
4, Hunt Eye, Long Cutter, 6 lbs., $16.00.
5, Hunt Eye, Short Cutter, 5½ lbs., $15.50.

Adze Eye Pick Mattocks.....$16.

Hunt Eye Pick Mattocks.....$16

Dis., 60 and 10%.

Grub Hoes.
Western Pattern, No. 0, 3 lbs., ₱ doz., $10.50.
Western Pattern, No. 1, 3½ lbs., ₱ doz., $11.
Western Pattern, No. 2, 4 lbs., ₱ doz., $11.50.
Western Pattern, No. 3, 4½ lbs., ₱ doz., $12.
Baltimore Pattern, No. 1, 3½ lbs., ₱ doz., $11.
Baltimore Pattern, No. 2, 4½ lbs., ₱ doz., $11.75
Baltimore Pattern, No. 3, 5 lbs., ₱ doz., $12.75.
Baltimore Pattern, No. 4, 5¾ lbs., ₱ doz., $13.75.
Dis., 60 and 10%.

CARPENTERS'.

BOXWOOD RULES.
Two feet, four-fold, 1 inch wide.

| Plate. | Middle. | Edge. | Bound. |
|---|---|---|---|
| Round joint | $4 | ... | ... |
| Square " | 5 | $7 | $15 |
| Arch " | 6 | 8 | 16 |

Two feet, four-fold, 1⅝ inches wide.

| Plate. | Middle. | Edge. | Bound. |
|---|---|---|---|
| Square joint | $7 | $9 | $18 |
| Arch " | 9 | 11 | 20 |

Two feet, two-fold, 1½ inches wide.

| Square joint. | Arch. | Arch Bound. |
|---|---|---|
| $5 | $7 | $16 |
| 12 | 14 | 24 |

Gunter's Slide.
Dis. 80, 10 and 10%.

LEVELS.

| | 10 to 16 in. | 18 to 24 in. |
|---|---|---|
| Arch top plate, 2 side views | $9.00 | $12.00 |

PLUMBS AND LEVELS.
Arch top plate, 2 side views.

| | 12 to 18 in. | 18 to 24 in. | 24 to 30 in. |
|---|---|---|---|
| Polished | $14.00 | $16.00 | $18.00 |
| Mahogany | ... | 16.50 | 22.50 |
| Mahogany tp'd and lp'd | 27.00 | ..... | |
| Polished and l pped | ..... | ..... | 24.00 |
| Polished and tipped | ..... | ..... | 28.00 |
| Polished, lip'd and tip'd | ..... | ..... | 35.00 |

| | in. | |
|---|---|---|
| Mason's level, 2 plumbs, polished, | 36, | $30.00 |
| Mason's level, 2 plumbs, p'd and t'd, | 36, | 36.00 |
| Mason's level, 2 plumbs, polished, | 42, | 36.00 |

PATENT ADJUSTABLE PLUMBS AND LEVEL.

| Arch Top plate, 2 side views | 26 to 30 in. |
|---|---|
| Polished and lipped | $27.00 |
| Polished and tipped | 30.00 |
| Polished, lipped and tipped | 39.00 |
| Mahogany | 27.00 |
| Manogany, lipped | 33.00 |
| Mahogany, lipped and tipped | 48.00 |
| Polished, triple stock, lipped and tipped | 48.00 |
| Mahogany " " " " " | 60.00 |
| Rosewood, lipped and tipped | 90.00 |

Dis., 70, 10, 10%

POCKET LEVELS.

| | |
|---|---|
| Iron top, Japanned | 2.00 |
| Brass top | 3.00 |

Dis., 70, 10, 10%.

SCREWDRIVERS.
Varnished handles, pat. metallic fastening. Size 1½, $1 per dozen; 2, $1.50; 3, $2; 4, $2.50; 5, $3; 6 $3.50; 7, $4; 8, $4.75; 10, $6; 12, $8. Dis., 75%.

BAILEY'S PATENT WOOD PLANES.

| Smooth. | | Handle smooth. |
|---|---|---|
| 9 × 8¾ in. | 8 × 2 in. | 9 × 2 in. |
| $2 | $2 | $2.50 each |
| Jack. | Fore. | Jointer. |
| 15 × 2¼ in. | 20 × 2⅝ in. | 26 × 2⅝ in. |
| $2.50 | $2.75. | $3.25 each |

Dis., 40, 10 and 10%.

PLANES, BAILEY'S PATENT IRON.

With pat. lateral adjustment.
Smooth, 8 in. × 1¾ in., $3; 9 in. × 2 in., $3.25; 10 in. × 2⅜ in., $3.75 each.
Jack, 14 in. × 2 in., $3.75.
Fore, 18 in. × 2⅜ in., $4.75
Jointer, 24 in. × 2⅜ in., $6.50 each.
Dis., 40, 10 and 10%.

STANLEY IRON BLOCK PLANES.

3½ × 1 in. 20c.
5½ × 1¼ in. 40c.
7½ × 1¾ in. 60c. each.

ADJUSTABLE.

5½ × 1¼ in. 60c.

7½ × 1¾ in. 85c. each.

Dis., 40, 10 and 10%

STANLEY'S BEADING, RABBET, SLITTING AND MATCHING PLANE.

Eighteen Tools, Bits, etc.

$8 each. Dis., 20, 10 and 10%.

STANLEY "ODD JOBS."

Embraces in combination with ordinary Carpenters' Rule:

(1) Try square.
(2) Mitre square.
(3) T— — square.
(4) Marking gauge.
(5) Mortise gauge.
(6) Depth gauge.
(7) Mitre level.
(8) Spirit level and plumb.
(9) Beam compass.
(10) Inside square for making boxes and frames.

Price 75 cents.
Dis., 20, 10 and 10%.

Double Gate Brass Valves.

Gland in packing box.

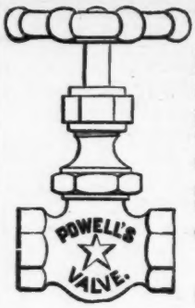
| Size. | Screw socket. | Flange. | Diameter of Standard Flange. | Face to face of Screw socket. | Face to face of Flanges. | Extra for slide stem and lever subject to discount. |
|---|---|---|---|---|---|---|
| In. | $ | $ | In. | In. | In. | |
| ⅛ | 1.25 | ..... | ..... | 2¼ | ..... | $1.00 |
| ¾ | 1.65 | ..... | ..... | 2½ | ..... | 1.00 |
| 1 | 2.15 | ..... | ..... | 2⅞ | ..... | 1.00 |
| 1¼ | 3.15 | ..... | ..... | 3⅜ | ..... | 1.00 |
| 1½ | 4.25 | ..... | ..... | 3¾ | ..... | 1.00 |
| 2 | 6.25 | 11.50 | 6 | 4½ | 4⅝ | 1.00 |
| 2½ | 11.50 | 18.00 | 6½ | 4 13-16 | 5⅜ | 1.25 |
| 3 | 16.00 | 22.00 | 7 | 5 | 6¼ | 1.25 |
| 3½ | 21.00 | 31.00 | 7½ | ..... | ..... | 1.25 |
| 4 | 35.00 | 43.00 | 9 | ..... | 7 1-16 | 1.25 |
| 5 | 52.00 | 64.00 | 10 | ..... | ..... | 1.25 |
| 6 | 78.00 | 90.00 | 11 | ..... | 9 | 1.25 |
| 8 | ..... | ..... | ..... | ..... | ..... | ..... |
| 10 | ..... | ..... | ..... | ..... | ..... | ..... |
| 12 | ..... | ..... | ..... | ..... | ..... | ..... |

Rubber-Faced Slide Gate Fire Hydrant.

| Diameter of pipe connection. | Diameter of stand pipe. | Diameter of seat ring. | One 2½ nozzle. | Two 2½ nozzles. | Three 2½ nozzles. |
|---|---|---|---|---|---|
| Inches. | Inches. | Inches. | | | |
| 3 or 4 | 4⅝ | 3 | $28 | | |
| 3–4–6 | 5¾ | 4 | 31 | $33.00 | $35.00 |
| 4 or 6 | 7 | 5 | ..... | 38.50 | 40.50 |
| 6 or 8 | 8 | 6 | ..... | 49.00 | 51.00 |
| 8 or 10 | 10 | 8 | ..... | ..... | ..... |

| Four 2½ nozzles. | Six 2½ nozzles. | One steamer nozzle. | One steamer and one 2½ nozzle. | One steamer and two 2½ nozzles. | Frost case, standard length. |
|---|---|---|---|---|---|
| ..... | ..... | ..... | ..... | ..... | $4.50 |
| ..... | ..... | $33.00 | $35.00 | $37.00 | 5.00 |
| ..... | ..... | 38.50 | 40 50 | 42.50 | 6.50 |
| $53.00 | ..... | 49.00 | 51.00 | 53.00 | 7.50 |
| ..... | ..... | ..... | ..... | ..... | ..... |

| For each 6 inches more or less than standard length of stand pipe, add or deduct from list. | For each 6 inches more or less than standard length of frost case, add or deduct from list. | Extra charge for hub. | Independ't nozzle gates each. |
|---|---|---|---|
| $0.60 | $0.44 | ..... | ..... |
| .75 | .50 | 6 in. $0.50 | $3.50 |
| .85 | .70 | No ch'ge | 3.75 |
| 1.00 | .90 | 8 in. $1.25 | 3.75 |
| ..... | ..... | ..... | 4.50 |




Star Globe, Angle and Check Valves.

| Size, inches. | ⅛ | ¼ | ⅜ | ½ |
|---|---|---|---|---|
| Globe and angle | .80 | .85 | .90 | 1.20 |
| Check V | .70 | .70 | .75 | .95 |
| Size | ¾ | 1 | 1¼ | 1½ |
| Globe and angle | 1.55 | 2.00 | 3 00 | 4.00 |
| Check V | 1.20 | 1.65 | 2.50 | 3.25 |
| Size | 2 | 2½ | 3 | |
| Globe and angle | 6.50 | 12 50 | 19.00 | |
| Check | 5.00 | 11.00 | 15.00 | |

Dis., 50%.

Also made heavy and extra heavy for special uses.

EDDY VALVES.

S. S. & O. S. Class L. & Y. 2.

Class 3 and 4. Cl'ss 4.

| Size. | Class 2. Iron, brass mounted. Screw, or flange ends. | Add for S S&L | Class 3. All ir'n for gas. Hub ends. | Class 4. Water works valves. Hub ends. | Class 5. Quick opening valves with rack and pinion stem. Iron, brass mounted. Hub ends. | Screwed. | Flanged. |
|---|---|---|---|---|---|---|---|
| 2 | $7.00 | $1.00 | $8.00 | $10.00 | $10.00 | $9.00 | $9.00 |
| 2½ | 10.50 | 1.30 | ..... | ..... | 15.00 | 14.00 | 14.00 |
| 3 | 13.00 | 1.40 | 10.00 | 15.00 | 20.00 | 17.00 | 17.00 |
| 3½ | 16.50 | 1.50 | ..... | ..... | 25.00 | 21.00 | 21.00 |
| 4 | 18.00 | 1.70 | 15.00 | 18.00 | 30.00 | 25.00 | 25.00 |
| 4½ | 22.00 | 1.80 | ..... | ..... | ..... | ..... | ..... |
| 5 | 25.00 | 2.00 | 20.00 | 25.00 | 35.00 | 31.00 | 31.00 |
| | 31.00 | 2.30 | 25.00 | 31.00 | 40.00 | 37.00 | 37.00 |
| | 37.00 | 2.70 | 30.00 | 37.00 | ..... | ..... | ..... |
| | 45 00 | 3.00 | 35.00 | 45.00 | 55.00 | 55.00 | 55.00 |
| | 60.00 | 3.50 | 48 00 | 60.00 | ..... | ..... | ..... |
| | 80.00 | 4.00 | 65.00 | 80.00 | ..... | ..... | ..... |

All Iron Valves, Classes and 5, 10 per cent. less than Brass Mounted.

**Varnish.**

E.S. 1827 & Co.

| For Finishing Coats. | gal. |
|---|---|
| Wearing body varnish | $5.50 |
| Medium drying body | 5.50 |
| One coat coach varnish | 4.50 |
| Wearing carriage | 4.50 |
| Heavy gear varnish | 4.00 |
| Coach body " | 4.00 |
| No. 1 coach " | 2.25 |

| For Under Coats. | | | |
|---|---|---|---|
| Hard drying body | $4.50 | Black rubbing varnish | $4.00 |
| Rubbing body varnish | 4.00 | Priming (1st coat) | 2.50 |
| Quick rubbing " | 3.50 | Filling (2d coat) | 2.50 |
| | | Rough stuff | 2.50 |

| For Inside Work. | | | |
|---|---|---|---|
| Best flowing varnish | $4.50 | Hard oil finish light | $2.75 |
| Best polishing " | 4.50 | " dark | 2.25 |
| Cabinet " | 3.00 | White copal | 4.00 |

| Dryers. | | | |
|---|---|---|---|
| Japan gold size | $3.50 | Brown japan | $1.25 |
| Coach japan | 1.75 | Liquid dryer | 1.25 |

Discount, 40 per cent. f.o.b. N. Y.

| Preservative Coatings. | | | |
|---|---|---|---|
| Spar coatings | $4.00 | Exterior car coating | $4.00 |
| I. X. L. No. 1 | 2.50 | Interior car coating | 3.25 |
| I. X. L. No. 2 | 4.00 | Locomotive coating | 4.00 |
| Floor finish | 2.50 | | |

Discount, 35 per cent, f.o.b. N. Y.

**Wheelbarrows.**

Climax Bolted Barrow, with Wood Wheel per doz. $22.50.
1½ tire of iron.
Common Nailed Barrow per doz. $18.50.
" Bolted " " " 18.75.

| | | | | |
|---|---|---|---|---|
| Lansing's Patent Iron-Bolted Barrow, | per doz., | | | $25.50 |
| Capital Patent Bolted Dirt | " | " | " | 30.00 |
| Red oak or Government | " | " | " | 40.50 |
| Wharf | " | " | " | 72.50 |
| Mortar | " | " | " | 30.00 |
| Bent Handle Stone | " | " | " | 48.00 |
| Coal or Ore | " | " | " | 31.50 |
| Pig Metal or Casting | " | " | " | 40.50 |
| Brick Yard 20 inch Iron Wheel | " | each | | 10.50 |

Globe Patent Bolted Garden Barrow } per doz., 42.50.
Box 30 by 24 by 12 deep, wood wheel }

Capita Patent Barrows

With Iron Tray, A, per doz., ..... $39.00
" " " B, " " ..... 42.00

The Leader Iron and Steel Barrows.
Gas-pipe Legs and Handles in one price.

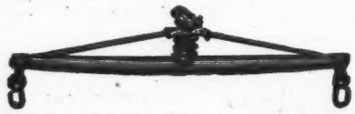
No. 1 Tray of 16 iron, capacity 3 cu. ft. of earth, each $12.
No. 2 " " 14 " " 5 " " " "
or 250 lbs. of coal ..... " 15
Galvanized 18 iron, capacity same as No. 2. ..... " 15

**Water Wheels.** Pelton.

| | Under pressure of 30 Lbs. | 60 Lbs. | 100 Lbs. |
|---|---|---|---|
| No. 1, $25 | ⅛ H. P. | 1 H. P. | 2 1-10 H. P. |
| No. 2, $50 | ¾ " | 2½ " | 5 " |
| No. 3, $90 | 1¼ " | 4 " | 8⅛ " |
| No. 4, $140 | 2½ " | 7 " | 14¾ " |
| No. 5, $190 | 4½ " | 12½ " | 26 " |

Dis. 15%.

**Whiffletree.**



Willson spring Jeffery Manufacturing Company.

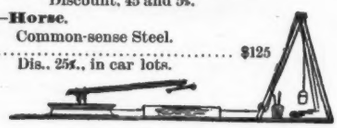
| | Single. | Double. |
|---|---|---|
| No. 1, 34 or 36 inches long | $1.25 | $2.50 |
| No. 2, " " " " | 1.40 | 2.75 |
| No. 3, " " " " | 1.50 | 3.00 |
| No. 4, " " " " | 1.65 | 3.25 |

Including either steel hooks or rings.
Discount, 45 and 5%.

**Whims—Horse.**

Common-sense Steel.

F. O. B. ..... $125
Dis., 25%., in car lots.



**Windmills.**

| | | |
|---|---|---|
| 10 ft. pumping | $75 | Plus cost of packing. |
| 12 ft. " | 95 | |
| 14 ft. " | 140 | |
| 16 ft. " | 225 | |

Dis., 50 per cent.

"Stover" Pumping Windmills (no tower).

| Size wheel. | Wt. packed. | Cubic ft. | Price. |
|---|---|---|---|
| 10 ft. | 650 | 50 | $80.00 |
| 12 ft. | 750 | 58 | 100.00 |
| "Zenith" Pumping Windmills (no tower). | | | |
| 10 ft. | 650 | 48 | 85.00 |
| 12 ft. | 750 | 57 | 110.00 |
| Dis., 50 per cent. | | | |
| 14 ft. | 1,400 | 108 | 160.00 |
| 16 ft. | 1,000 | 114 | 250.00 |
| Dis., 45 per cent. | | | |
| 20 ft. | 2,950 | 220 | 400.00 |
| 25 ft. | 4,225 | 280 | 600.00 |
| Dis., 40 per cent. | | | |
| "Zenith" Geared Windmill (no tower). | | | |
| 14 ft. | 1,550 | 178 | 260.00 |
| 16 ft. | 1,780 | 198 | 300.00 |
| 20 ft. | 3,170 | 216 | 500.00 |
| Dis., 40 per cent. | | | |

Prices include upper set of Gears and about 5 feet vertical extra heavy shaft in windmill head.

**Wire Rope.**

| Circumference in inches. | Diameter in inches. | Price in cents per foot best crucible cast steel rope. 19 wires to strand. | 7 wires to strand. | Price in cents per foot best bright iron rope. 19 wires to strand. | 7 wires to strand. | Price in cents per pound galvanized iron rope. 12 wires to strand. | 7 wires to strand. |
|---|---|---|---|---|---|---|---|
| 5½ | 1¾ | 100 | ..... | 69 | ..... | 11 | 10½ |
| 5¼ | ... | 90 | ..... | 64 | ..... | " | " |
| 5 | 1⅝ | 80 | ..... | 58 | ..... | 11½ | " |
| 4¾ | 1½ | 71 | ..... | 53 | ..... | " | " |
| 4½ | ... | 65 | ..... | 48 | ..... | " | " |
| 4¼ | 1⅜ | 60 | 60 | 43 | 39 | " | " |
| 4 | 1¼ | 50 | 50 | 36 | 34 | " | " |
| 3¾ | ... | 46 | ..... | 33 | ..... | " | " |
| 3½ | 1⅛ | 41 | 40 | 29 | 27 | 12 | 10¾ |
| 3¼ | ... | ..... | ..... | ..... | ..... | " | 11 |
| 3⅛ | 1" | 34 | 32 | 26 | 23 | ..... | ..... |
| 3 | ... | 33 | ..... | 24 | ..... | " | 11 |
| 2¾ | ⅞ | 27 | 25 | 20 | 19 | ..... | 12 |
| 2½ | ... | 23 | ..... | 18 | ..... | ..... | 13 |
| 2¼ | ¾ | 21 | 19 | 16 | 14 | ..... | 14 |
| 2 | ⅝ | 18 | 14 | 14 | 10½ | ..... | 15 |
| 1¾ | 9-16 | 17 | 11 | 12 | 8 | ..... | 16 |
| 1½ | ½ | 15 | 8 | 10 | 7 | ..... | 16 |
| 1¼ | ⅜ | ..... | ..... | 8 | 5 | ..... | 17 |
| 1 | 5-16 | ..... | ..... | ..... | 4 | ..... | 18 |

Discounts, for export in bond, requiring from four to six weeks time, 55%.